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ADDRESSES.

THE ADDRESS OF THE PRESIDENT.

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Perhaps never before in the history of this ASSOCIATION has its presiding officer, elevated to his exalted position through the kind suffrage of his confrères, felt at a greater disadvantage than at present. Fully imbued with an appreciation of the dignity and importance of the station, and the difficulties attendant upon the proper discharge of the duties that devolve upon him, I must crave your kind indulgence for any errors of judgment as expressed through my rulings, and trust they may be ascribed rather to an excess of ambition to do right than to a willful carelessness or indifference.

Fifteen years ago in the beautiful city of Atlanta I was made your First Vice President, my superior officer being the distinguished surgeon of New York, Prof. L. A. Sayre, and I recognize it as an interesting coincidence that it should be my privilege to return to this Athens of the South to round out my official connection with this, our loved institution.

Indeed, my present visit is fraught with the greatest interest to observe the great changes that have been wrought in the period, as expressed through the wonderful growth in population and business, whether in manufacture or trade; the evidences of refinement and culture as exhibited in your lovely homes and grand public and private structures, and last, but not least, it is apparent on every side that that generous hospitality for which your people have ever been distinguished has not only not abated, but, if possible, increased in the same ratio with the advances made in every other direction.

At the time alluded to these people had but recently passed through the trials, privations and sufferings incidental to a most cruel civil war, than which nothing is to be more deplored, the indications of which were more or less noticeable in every surrounding. But, lo! what a change! In lieu of the remains of portentious breastworks and other requirements of physical strife, there has arisen as though through the operations of Aladdin's lamp or some magic wand, this most picturesque and prosperous city, and to-day we, from the North, East and West, again grasp your hands that are so cordially extended with that warmth and unity of purpose that express in silence more than it is possible to utter with the lips.

These occasions that bring us annually together serve many purposes. They are in a sense a family reunion, each individual of which is interested in the welfare of the other, and the whole in the one great, noble and God-like object of studying the best methods for alleviating suffering and prolonging life. These convocations also serve to bring the members of our profession in closer touch with each other, and establish friendships that in many instances endure throughout life.

It is not my purpose or intention to occupy your valuable time in delivering an oration, however propitious the occasion, nor yet to expatiate upon themes that are now past; but for a few moments only, to call your attention to several living questions that seem to me, at least, to be of vital importance, and deserving of our earnest attention, and in some directions appeal to us very strongly for action.

It can not have failed to attract your attention that the tendency of the "Grand Army" of medical men of to-day is to depreciate the dignity of their profession and bring it to a commercial level. When the older members of our beloved profession were yet young, to be a physician was considered the greatest of honors and the holiest of callings. The medical man was looked upon by those whose ailments he ministered to, in a sense, as a saint and his word was law, to disobey which was a mortal offense, and the opportunity to repeat which was never furnished. The doctor was a gentleman as well as a scholar, commanding the love and esteem of his patients and the community in which he lived. This was the rule; but I fear that now it is the exception. The reason for this is undoubtedly to be found in the multiplicity of so-called medical schools with their natural bidding for patronage, the low standard of preliminary requirement, the limited curriculum and superficial examinations. As the outgrowth of this condition we have the ranks of the profession overcrowded, and those who are in any manner qualified together with those who are not, in order as speedily as possible to become prominent, resort either to the making of books, the authors of which are too often without the least experience in the science of which they profess to treat; or organize medical schools and thus bring about the condition just alluded to. From my standpoint of reasoning the only remedy for these growing evils is governmental interference and regulation of medical education, or certainly of professional examination. I would suggest for your consideration the propriety of referring this matter to a special committee with a request that they report at the next session of this ASSOCIATION.

I am perfectly conscious that in some of the States recent new departures have been made or attempted, giving evidence of a disposition to correct errors, but are these new requirements and regulations faithfully carried out? Is the announced advance much more than a species of advertisement intended to appease the anxiety and restless spirit of those who have been laboring assiduously to bring about a revolution in our system? I fear not. True, New York has taken, through its Board of Regents, a decided step forward, which if religiously carried into effect would meet and correct many defects, and the result would be

highly satisfactory; also can it be said that Illinois and perhaps some other States are making efforts in the same direction. But my observation does not greatly encourage me in the hope I have so long cherished; yet I have not relinquished this hope and trust that time will reveal these steps to be properly directed and followed. What has been said of New York and Illinois will apply with equal force to other States where these new departures have been taken.

I am well aware that this question has been repeatedly presented in one form or another, but the results have been *nil*, or at most, unsatisfactory, and being convinced that nothing will be accomplished except through agitation, I have once more ventured the attempt to set the ball in motion.

A member of our profession, also a teacher, recently in a letter addressed to me, suggests that in this address I urge the members of the ASSOCIATION to secure legislation in their respective States of such character as to bring about improvement in this direction. Another, with equal earnestness suggests that there should be a national board of examiners created by Congressional provision composed in part of the heads of the medical bureaus of the army and navy, that shall examine all applicants as to their qualifications to practice medicine and surgery, and to such as are successful a certificate shall be issued, setting forth the fact, which would without doubt be accepted by the examining boards of the several States and a license be issued thereon, entitling the holder to engage in practice within that State. This, he says, would leave the State boards independent of the national, in so far as the power to issue a license, and for proper cause revoke the same, may be concerned.

It may and doubtless will be argued by some of you that the efforts of the American Medical College Association within the past few years have brought great changes in the desired direction. It must be admitted that improvement has been effected, but so very slowly, and the usage of many of the schools to evade the laws established by the Association is so general, that the good resulting is small, very small, and the manifest reluctance of so many now within the organization to embrace the last advance, viz., the adoption of the four-years requirement, gives but little promise for the future; and again, whilst of the whole membership of the College Association, quite a number, seemingly, as announced through their annual circulars, desire to elevate the standard of preliminary qualification of applicants for admission, I fear that but few adhere to what they profess; in other words, whilst not a few colleges announce a liberal preliminary education as a prerequisite to admission, the examination of matriculation is a mere farce, conducted usually as they are by one member of the faculty, and consisting generally of no other questions than which a kindergarten pupil should be able to pass.

So long as these examinations of matriculation are conducted by members of the faculty of the medical schools, just so long will these evils continue, and so long as the professional examinations for degrees are conducted by interested parties, just so long will the ranks of the noblest of professions be filled with uneducated, untrained so-called doctors.

The medical profession is over-ridden with quasi-medical schools, and the community with so-called dispensaries, where small fees are paid and yet smaller service received, resulting in a growing distrust and a contempt on the part of the laity for the grandest and noblest of all sciences, as practically exhibited recently by the New York Life Insurance Company and the Equitable Life Assurance Society in adopting a graded scale of fees for medical examinations; competition is the explanation; and these and other corporations, avaricious as they always are, worshiping at the shrine of gold, see only the few thousands saved to their respective companies, but fail to see the enormous loss that will be entailed in the end. No man qualified to make a thorough examination, such as is required by insurance companies, if he be properly imbued with the value and importance of his service, will or can assume the responsibility attaching to his function as an examiner, without an adequate return. Surely the fee of $5 was small enough, and the offer of any sum less is simply an insult to an educated physician and a bid for cheap, unscientific service, which can be had from the ranks of the unskilled and irresponsible. But are these services such as a sound insurance corporation desire? I think not; but they ought to have none other or be compelled to pay for it. Let every examiner plant his foot and decline employment without adequate compensation; let it be published to the world that certain companies employ incompetent men, or paying cut fees receive cut services, and very soon will they discover their mistake and be brought to a realization that the best goods always command the best prices.

As has been said, I know that this question has been discussed times without number, and is annually considered by the College Association, but I am beginning to feel that after all it is better to agitate in this ASSOCIATION, from which the College Association sprang, than to depend wholly and solely upon the latter.

Cicero once said to Piso, with whom he had had a disagreement: "You have crept into honors through the reputation of your ancestors, like whose smoky busts you are only in color." So may it be said of the great mass of the medical profession of to-day; they have crept into its ranks, induced through the exalted reputation given it by the mighty brains of its greatest representatives, like whom, however, they are only in title. Whilst I thus discuss this burning question in language perhaps a little too plain, I do not wish to be interpreted as saying or thinking that this great and glorious country of ours is without schools equal to any to be found in the world, or teachers who are not the peers of the best. On the contrary, from the standpoint of one who has enjoyed peculiar opportunities for observation in many of the larger educational centers, I feel justified in asserting that the United States, including Canada, can proudly boast of as good schools and brilliant teaching material as any country, and further, that its general system of medical education in some particulars (because of its great practical character) is vastly superior to that pursued in many, which has produced and is producing some of the brightest, ablest and conscientious original investigators, through whose labors the literature and field of science are being daily enriched, building for themselves individual monumental reputations, and for the profession of which they are such conspicuous and shining lights, winning the esteem and admiration of thinking men, and the love and devotion of those in whose behests they are laboring.

The list of such men as have been wholly educated at home is too lengthy to present at this time; with

many you are, or have been personally acquainted, whilst the names of others have been handed down through the long line of professional literature, and are to be found emblazoned on every page of medical history, there to endure so long as time shall continue.

But such men are not of the class to which we have been alluding, and with which our profession is so overcrowded; these first have taken up the science through a love for science and an exalted appreciation of the duty of man to man, the God-like character of their calling, and a desire to possess a self-approving conscience; these considerations led them to a proper preparation, such as is secured only through unremitting study, assiduity and honesty of purpose.

These are the men who should constitute the beacon lights of the profession, guiding the younger ones contemplating the adoption of medicine as a profession. Of this class there are within the sound of my voice many to-day, and I appeal to you in the name of science and humanity, to bend your energies, exert your every influence, and lend your aid to the end that this noble profession as represented through its rank and file, shall no longer be the subject of ridicule and scoff, but within the near future command as it should that esteem and respect to which its exalted character and purposes entitle it. It is not sufficient for the Association of Colleges to say that it proposes to do thus and so, or that it has done so and so, but we want an earnest determined effort on the part of you who are in direct and immediate interest to see that that which is promised is performed, that there may be no more gerrymandering as to preliminary requirements to the study of medicine and that the highest possible standard be set up, remembering always the aphorism:

VIRTUS IN ACTIONE CONSISTIT.

Another quest of grave importance and of which I think this ASSOCIATION should take cognizance and suggest a remedy, is the total abstinence of reciprocity between the United States and foreign countries as to laws governing the right to practice. Why Americans should be required when taking up their abode in Germany, Great Britain and even in the territory of our first cousins, the Canadas, to undergo an examination preliminary to securing a license, whilst *our* portals are flood-gates through which every country of the earth pours its overplus of medical men, or rather to put it more correctly, why our country should receive with open arms, without let or hindrance the excess of product of foreign schools without requiring of them the same as is required of us? I can see no reason, and am distinctly of the opinion that the time has arrived when we should be heard, and something done to arrest the strides of this rapidly growing wrong.

Looking over the medical registers of the various countries it will be easily discernible that the number of graduates of foreign schools is greatly in excess of the number who remain at home and engage in the field of their profession. What has become of those who do not remain at home? The answer is, that from three-fourths to seven-eighths emigrate to America, and strange to say, I am led to believe that the very regulations governing their examinations are in a large measure responsible for this condition of things. From the best sources of information at my command I learn that in Germany the examination for the doctorate is much less stringent than the "Staats Examen." The former confers no rights, and the latter is indispensably necessary to entitle the candidate to the privilege to practice in the empire; consequently the student who desires to emigrate may pass the required examination for the degree of "Doctor in Medicine," or before he reaches this may conclude as no examination is required in many of the States of the Union he will take his certificate for the several semesters he may have attended and go to America, "The land of the free and the home of the brave," where he may practice his (in many instances) imperfectly acquired profession and not infrequently impose upon the credulity of the people. In many cases the university examination is conducted by the same men who compose the board and conduct the "Staats Examen," which seems at least to be paradoxical, but which I believe is nevertheless true; this system is fraught with possibilities that bode no good

The university examination for the doctorate is an easy one, and the fee for the same goes to the faculty, whilst that paid for the "Staats Examen" goes to the government; ergo, when we consider that the fee for the doctorate goes into the pockets of the examiners, and that for the state's examination goes to the government, and that the candidate is permitted to engage in practice in his own country, thus becoming a competitor of his examiners, it is easy to see to what extent the custom may be abused. I mean no offense, and do not charge that abuses are practiced, but merely call attention to possibilities, and as all men are human, it is not probable that the Germans differ from other people.

For the degree, it is not even obligatory that the foreign student should attend either the didactic or clinical lectures, and the examination, as has been said, is so easy for such that it has been and doubtless is an inducement for many who possibly failed at home to repair to this country with a diploma, which through want of knowledge on the part of our people, carries more prestige than a degree from one of our home universities.

Coming nearer home, to our very borders, we find that in the several provinces of Canada not only is it impossible for an American to receive a license without examination, but also is it impossible for one having a license in one province to practice in another, and that no Canadian with Canadian qualifications is eligible to registration in Great Britain.

Now, whilst we recognize the excellence of their, or at least some of their, medical schools and the elevated standard of preliminary requirement observed, it seems somewhat singular that this want of accord between the several provinces should exist, which is, indeed, attracting their own attention, and I see that at the meeting of the Canadian Medical Association in 1894, a committee on "International Registration" was appointed, which reported at its last meeting held in Kingston, "that it regretted that the system which at present obtains," "prevents the names of medical practitioners in the Dominion being placed on the British register, which the council of medical education of Great Britain has more than once signified its willingness to grant, that with this end in view it is, therefore, most desirable that there should be a uniform standard of medical education and a uniform method of examination for the whole Dominion." Thus it will be seen that our neighbors are wrestling with this question in the hope of securing uniformity of requirement throughout the British realm.

But whilst this is so, and they are to be commended for their laudable efforts in this direction, they deny to the American educated graduate the right to practice in any and all provinces without first undergoing a proper examination. From my standpoint whilst they are to be commended, as perhaps are all other people acting under similar regulations, there is a very trite maxim that applies to this condition with considerable force, "that it is a poor rule that does not work both ways." Now, I would not have Canada, Great Britain, Germany, France or any other country having these regulations and requirements recede one iota, but would rather encourage them to even higher aims, but I would have our own people adopt a similar system, through which foreigners coming, whithersoever they may, will be required to undergo a rigid examination before a national board of examiners, composed in part of the medical bureaus of the United States army and navy and partly of men appointed by the President or Chief of the Board or Education, which board would have its headquarters at Washington, D. C.

Through the operation of such a regulation or law the number who now seek the degree simply for the reason that it is recognized in this country, would be greatly lessened and there would be introduced into the ranks of the profession such only as are thoroughly qualified, to that extent certainly that entitles them to practice in their own country, thus relieving this country of what we are not in need, and measurably reserving our own field for those who are educated here and those from abroad who have passed the necessary examinations at home, and possibly such as may be established here, furnishing a guarantee which will be alike a credit to the profession and a benefit to the people at large. In a word, is it not anomalous for a country to have two grades of qualifications for its medical men, one for home use and the other for exportation; is this not indeed getting down to a commercial basis?

Would it not be well to inject a little of the Monroe doctrine into the medical profession of America as well as into the government? Surely if it be admissible that a Doctor of Medicine can not practice in his own country without a state's examination as in Germany, or that the graduate of the university of one province can not practice his profession in another province, as in Canada, is it not admissible that we should as a great nation, however free in a general sense, establish some regulation by which we may protect ourselves, as against invasion from every nation of the earth, however desirable as citizens they may be (although the majority never become such, but too frequently render themselves offensive through their arrogance whilst living in our midst, and when a fortune is acquired take their gains and return to their own country)?

In every walk of life we find those of the same profession, as the clerical and legal, as well as the trades and mechanics united for the purpose of governing its members, not only in their relations to those not of their own calling but also of each other, thereby tending to elevate themselves in the dignity of manhood and stimulating them to a demand for the right. Why, then, should the medical profession not do the same, particularly as to their relations one to another, and the establishment of proper regulations governing the standard of education, entitling one to enrollment in its ranks, whether he be a foreigner or a native-born, receiving his training in America or abroad? The code by which we are supposed to be guided makes no such provisions, and I throw out the suggestion that it may be well that it be so amended as to cover these questions.

Without any disposition to contribute to the already generally expressed dissatisfaction growing out of the recent announcement of the twelfth International Medical Congress to be held at Moscow, Russia, in 1897, we can not avoid asking ourselves the reason for restricting its transactions to the French language, or in other words, why it is that the English-speaking people, who perhaps furnish as much support to these Congresses as the rest of the civilized people combined, whether it be in the value of their contribution to the literature of the science or in the lavish expenditure of money amounting too often to recklessness, are overlooked. True, it may be reasoned that the French is more universally spoken, being the court language of Europe. But we answer that 75,000,000 of intelligent people on this continent, furnishing as brilliant minds as can be found within the ranks of the profession in any country of the world, who are through their recognized industry in the direction of investigation constantly enriching the science, are entitled to recognition. Let us trust, since none other than the French language will be considered official, that it may be developed that as many foreigners may be met who speak our language as there will be of English-speaking people who have some knowledge of other languages than their own. Individually I feel that this regulation is but little short of an insult, particularly since, to quote from their announcement, they say: "At the general meeting the addresses *may* be delivered in other European languages." English practically is ignored, and thus public notice is given that we are not wanted.

EMULATIO EMULATIONEM PARIT.

To quote from the post-prandial speech of Dr. J. H. Hollister, of Chicago, on the occasion of the annual dinner of the Gynecological Society of that city on Oct. 18, 1895: "Let no man be over-anxious about his reputation if he intend the right and does his best; ultimately that reputation will take care of itself and of him too." This is true of individuals, true of nations. Great has been the progress of nations during the last 300 years; the development of America in that period has been the phenomenal fact. Cradled without parental care, it came to its estate without the help of other nations; in fact, it grew by reason of their neglect. A noble manhood was its only inheritance. All else is of its own creation. For nearly two centuries we were esteemed a semi-barbarous people by the crowned heads and the elite of Europe, and their prejudices have only been in any measure conquered by our sublime indifference. The struggle to make ourselves a name and a place among the foremost has been indeed severe, but the issue is no longer doubtful. You who have met with this prejudice on foreign shores know well how strong it yet remains; but you know full well that as professional men you have nothing left to fear, and that especially in medicine and surgery Americans have no apology to make. We are to be courteous ever; but deferential or craven, if ever we were, nevermore.

The past year has been no exception to those that have preceded it, in the direction of advancement, invention and discovery; indeed, in some ways it has

eclipsed any of its predecessors. Without enumerating the *many* inventions and discoveries, perhaps the most important is that made by Roentgen of the cathode X rays, or rather their utilization in the direction of surgery. What the possibilities of this discovery and application may be far exceeds the comprehension of man at this time. If but one-half should be realized of what seems possible, it will be ranked as the greatest discovery of the nineteenth century, and the methods of investigation of disease be so simplified and made exact as to seemingly render it positively impossible to make an error in diagnosis. What a blessing to suffering humanity, a boon to the profession.

The claim advanced by Dr. Cyrus Edson of having discovered a cure for tuberculosis, in what he styles asceptolin, is one that naturally attracts attention, and as with the supposed discovery of Koch, will, I should think, be thoroughly tested. Let us hope for better results than were obtained from tuberculin; in this connection it is proper to say that it is to be regretted that men of the character and well-known scientific attainments and honesty of purpose of these should allow a description of what seems to them to be valuable to find its way into the secular press, there to be discussed by unscientific minds before it has been fully experimented with by their authors or others capable of instituting and of observing the results of properly conducted tests. This practice of flying promiscuously into print, whether through the columns of the daily press or medical journals, is fraught with evil, and in defense let be said what may, it savors of commercialism, is undignified and unwarranted and calculated to check investigation on the part of those whose ambition seems above this sordid level, and in so far stay the wheels of progress.

We can easily understand how tempted is the enthusiast, believing he has made so valuable a discovery, as would a cure for consumption be, to herald it to the world, and particularly the profession of which he may be an honored member. We can believe that in so doing he may be actuated by the highest motives, the most exalted sentiments, as holy as those that led the great, lamented Pasteur, who when admonished by his physician of the great danger he was exposing himself to, in spending so much time in a greenhouse where he was pursuing some investigation, replied, "I am in sight of the end, I can not give up my work; come what may I have done my duty." But such men rarely, if ever, promulgate any discovery till its value has been thoroughly established beyond all question. Let us emulate their example in the thoroughness of their work and the caution exercised in the promulgation of it.

The morbid mentality that seems to pervade a large portion of the clerical profession as well as our own, inducing them to endorse every species of proprietary and patent medicines, is a curse that should be stamped out. The clergyman under a conviction that it is his prerogative in looking after the soul to also care for the body, not only presumes to prescribe for the sick man but also to give his official endorsement to every nostrum upon the market without having the knowledge of its composition or the nature of the disease for which he recommends it. This is obviously wrong, productive oft-times of great mischief and is an unwarranted liberty taken with the confidence usually reposed in the clergyman, and an exhibition of meddlesomeness that is totally unjustifiable; surely if he conscientiously discharges the duties properly attaching to his own profession he will have all he can well do, leaving the investigation of disease and its treatment to those whose profession it is to deal with such matters. This pernicious practice is not limited to the representatives of the church, but extends to the ranks of our own profession. How common it is for medical men, particularly the younger, to attach their games to general recommendations and grant individual certificates setting forth the wonderful results of the employment of certain proprietary medicines! This is less excusable yet, since such certificates carry with them the prestige of professional endorsement; that in itself is a gross violation of the code by which we profess to be governed. I feel that all such violations on the part of members of this ASSOCIATION should be made punishable, at least to the extent of reprimand or perhaps expulsion. Of course, these remarks are intended to apply particularly to the endorsement of such nostrums and proprietary medicines the formulas of which are not published but kept secret, either as to the ingredients or proportion of their component parts.

It has been with inexpressible pleasure that I noticed action had been taken by the ASSOCIATION at its last meeting, together with hearty support from the State Society of Pennsylvania, so far as the advertising columns of our JOURNAL are concerned. We commenced the reform where it should begin, at home, and now let us carry it still further and apply it to individuals. These published certificates are for the most part furnished for the advertising it will give its author, or perhaps the gratification it may bring to see their name in print, either of which is undignified in the extreme and tends to bring the profession to a commercial plane.

Equally gratifying is the effort now being made, asking congress for an additional member of the Cabinet and who shall be known as Secretary of Public Health, and who shall be head of a department, to be known as the Department or Bureau of Health, which shall have a general charge of health matters as well as statistics. Such a department would be of incalculable utility and value, and the measure should by all means possible be pushed forward.

While the year just passed has been marked by several important discoveries of scientific value, the usual advances in the line of medicine and surgery have been made, but I begin to fear that the tendency to push surgery to the exclusion or neglect of medicine is becoming glaringly conspicuous.

It would seem that every tyro imagines that surgery offers the quickest route to success, and that fame is to be attained *only through blood*. Hence every case the symptoms of which are directed to McBurney's point is necessarily a case of appendicitis, for which the only sovereign remedy is the knife; or, if it be a woman, and her suffering is referred to the ovarian region, or she have a fibroma, however small and barren of symptoms of importance, not only must she be subjected to celiotomy at once, but in nine cases out of ten has her uterus, or uterus and ovaries, sacrificed, thus unsexing her without the slightest effort being made to spare these organs, and preserve to the woman her distinguishing function.

If the same practice prevailed to emasculate every man who might have a neurosis of the cord and neighboring organs, there would be fewer operations

than are now done on woman for no greater cause. So common have these operations become of late, owing to the comparative safety through the employment of asepsis attending them, that many women consent to or even apply for them in order that they may avoid bearing children. How far a surgeon may be justified under these circumstances in rendering the desired aid is problematical, whether viewed from either a moral or legal standpoint.

To use the language of another: "We believe thoroughly in allowing the public to estimate the medical profession, but it sometimes seems as though the exploitation of the wonders of surgery was a little overdone, the result being that as soon as a person has any ailment of any part of the body, the people at once want to have it cut out," and, I am sorry to say that this feeling extends to too many of the profession, one saying to me some time ago in consultation: "Why, Doctor, you very well know that all of value in our science is surgery." It is scarcely necessary to say that the author of this remark was an abdominal surgeon, or to put it more directly an abominable surgeon.

That these operations are called for, and loudly demanded by the exigencies of the case occasionally no one can deny; but that they are being done much too frequently I challenge successful contradiction.

The mere fact that the improvements and advancements in surgical procedure make them relatively safe, should not be advanced as an argument, and I look with suspicion upon him who may claim that as no use can be assigned the appendix vermiformis it should upon the slightest provocation or excuse be removed. Is it not time that a halt had been called, and that such cases should be assigned to those who are expert in diagnostic technique as well as surgical procedure? Can any law of either God or man be found to justify oöphorectomy or hysterectomy except under the most dire conditions?

Before concluding this very imperfect address, I wish to call attention, in addition to the several questions discussed, to a few serious defects from my standpoint of reasoning in the operations of the Constitution, By-Laws and usage of the ASSOCIATION.

1. There is nothing like the Council of the British and other medical associations, whose duty it is to be in permanent session, or, at least, to meet several times a year, to consider all public questions affecting the welfare of the profession in general and the interests of the AMERICAN MEDICAL ASSOCIATION in particular. At the annual session there is no time for calm deliberation, and consequently there is great danger of hasty and ill-advised legislation, and errors occurring at the moment require a whole year to correct.

2. It appears to me that the ASSOCIATION as a body should not act on any resolution or ammendment until it has been carefully revised and recommended by the Council or the Business Committee. In this way we would secure better legislation and prevent the adoption of ambiguously expressed amendments and resolutions.

3. It seems to me that the permanent members of the ASSOCIATION, the conservative element, the men who attend year after year out of love for the ASSOCIATION and the science, and who are the most interested in their welfare should not be thrust into the background and deprived of all voice in the management as at present; it seems the height of absurdity to give the ballot to the new members, who are unfamiliar with the modes of procedure and know nothing of the policy and tradition of the organization and disfranchise the old ones. (Possibly this may be in a measure overcome by the operation of an amendment introduced at our last meeting should it be adopted.)

4. As regards the place of meeting, I think the action of the nominating committee should be final, as was contemplated in the framing of the constitution wherein a nominating committee was provided for, a part of the duty of that committee was to discuss this question and thus relieve the ASSOCIATION itself of the waste of time and wrangling which this question invariably excites.

5. To me it seems desirable in deciding this question of place meeting that such State or other societies as extend invitations to the ASSOCIATION to meet with them, should be enabled through their representatives to state to the nominating committee the best rates of transportation to said point obtainable, for it is manifestly probable that by making arrangements in advance and getting the roads to bid, as it were, we may secure better terms than by fixing the place first, and making terms afterward.

6. And finally, it is obviously wrong that we should, on taking a vote upon vital questions, have no system or method by which those entitled to the franchise shall be protected in the exercise of it, as against such as are not so entitled. I would suggest as a remedy for the increasing evil that there should be some means of segregation adopted.

And now, one duty only remains, which I would fain avoid, but painful as it is and reluctantly as I approach it, it must be done. It is the sad, sad announcement that like all preceding years this just passed has been no exception, and that our ranks have been greatly reduced by the unrelenting hand of death; many of us here assembled to-day are looking about in the vain hope of meeting some who last year were our companions and co-workers. They are not here! They have passed to the other side and joined the silent majority. The committee on necrology will present a fitting report of such. Meanwhile let us indulge in the hope that their record during life may have been such as to entitle them to that reward which is accorded only to the faithful and just. Let us trust they may be among the elect, and that from on high may be exerting an influence upon our lives that shall be at once ennobling and sanctifying, that we may remember ever that our spirits, like theirs, must return to the God that spake them into existence, and yet:

> "It is hard to be parted from those
> With whom we forever could dwell;
> But bitter, indeed, is the sorrow that flows,
> When perhaps we are saying, forever, farewell."

Evidence of Negligent Treatment.—A physician and surgeon undertook to treat an injury to the thumb of a man's left hand, and the hand became permanently disabled. For this alleged malpractice, a judgment for $500 was obtained, which the appellate court of Indiana, affirmed March 3, 1896, in the case of Freeman v. Hutchinson. During the progress of the trial a physician and witness for the plaintiff was permitted, over the defendant's objection, to examine the injured thumb in the presence of the jury, and to exhibit and describe its condition. The appellate court holds that there was no error in this. Not only may a witness use the injured member in giving his testimony, but the court says it is proper for the jury to examine and inspect it. Such evidence is of the highest rank.

ON SOME OF THE LIMITS OF THE ART OF SURGERY.

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Mr. President and Members of the American Medical Association:—Modern surgery has attained a degree of development which entitles it to the distinction of a science and an art. As a science surgery is of recent date, having been founded and perfected during the last half of the present century. As an art it has been practiced for centuries by our ancestors with credit to themselves and benefit to the injured, the crippled and the sick. When Boyer wrote the introduction to his classic work on surgery he expressed the conviction that surgery had reached perfection. How little did he dream of the great changes that would be wrought in the practice of his cherished profession by the progressive pathologists and surgeons of the next few generations! How innocent and absurd does such a statement appear in the face of the labors of such men as Virchow, Rokitansky, Rindfleisch, Klebs, Recklinghausen, in pathology; Pasteur, Koch, Ogsten, Rosenbach, Baumgarten, in bacteriology; Lister, Langenbeck, Billroth, Hueter, Esmarch, Czerny, Gussenbauer, Nélaton, Verneuil, Terrier, Macewen, Gross, Agnew, in surgery; Terrier, Hitzig, Horsley, in cerebral localization; Spencer, Wells, Keith, Winckel, Martin, Péan, Ségond, Pozzi, Sims, Emmet, Battey, in gynecology, and a host of other faithful unselfish workers who have made surgery what it is to-day and what it is intended to be, the most honored, respected and beneficent branch of the healing art. What a contrast between the standing of the surgeon of to-day in the community, the profession and from a scientific aspect as compared with his colleagues of only a century ago! It is not long since the art of surgery was limited to bleeding, cupping, leeching, setting of a broken limb, reducing a dislocation, stanching hemorrhage, opening an abscess or amputating a limb for injury or disease beyond the reach of conservative measures. He was the subordinate, almost slave, of the pompous, arrogant and self-confident physician of that time. He subsisted from the crumbs that fell from time to time from his master's table. The betterment in the standing and sphere of the members of the surgical craft during the last century is entirely due to the enormous progress that has been made in the science and art of surgery. During this time the legitimate field of medicine has gradually diminished before the advancing columns of progressive and aggressive surgeons. The physician no longer has a monopoly over the diseases of all the internal organs. The physician's distinctive apparel and gold-headed cane of but few years ago no longer intimidate the surgeon; they have disappeared from the scene and the surgeon stands on the same level, if not higher, in every respect with the physician in the eyes of the masses and the estimation of the scientific world. Modern pathology and the new science of bacteriology have laid a permanent foundation for the steady and progressive advance of surgical thought and work. The inflammatory complications of wounds and the etiology of most of the chronic infective surgical diseases have been cleared up by bacteriologic investigations during the last twenty-five years, and the knowledge thus gained has enabled the surgeon to prevent in a large measure the former and to treat intelligently and with increased success the latter. Many of the most noted surgeons who have left a strong and permanent impression on surgical literature and practice during the last quarter of a century have been enthusiastic and practical bacteriologists and competent pathologists. The wonderful development of operative surgery during the same time is one of the earliest and richest fruits reaped from the vast and fertile field sown and cultivated by bacteriologists of every civilized nation. To the immortal Lister belongs the honor of having opened a systematic and successful crusade against the surgeon's most treacherous enemies—the pathogenic microbes. The great principles which he conceived and introduced into practice created a new era in surgery. Antiseptic surgery is one of the many fruits of his genius and the one, to whom we as a profession and humanity owe more than to any other surgeon dead or living, has been permitted to live long enough to see the creation and blessings of aseptic surgery, the handiwork of his innumerable enthusiastic followers. Antiseptic and aseptic surgery have smoothed the rough and rugged pathway of the practical surgeon. Ordinary cleanliness has given way to surgical cleanliness. The almost universal introduction of antiseptic and aseptic precautions in the treatment of wounds in private and hospital practice has nearly eradicated the three greatest enemies of the surgeon of old, namely, hospital gangrene, erysipelas and secondary hemorrhage, and minimized the occurrence of suppuration and its manifold immediate and remote complications.

No wonder that a sense of security created by such wonderful changes made the surgeons bold. In consequence of such revolutionary changes wrought in the practice of surgery new territories were invaded and organ after organ, the seat of injury or disease, were subjected to direct surgical intervention. Step by step the scalpel found its way into localities where formerly the physician had reigned alone and supreme, and where its presence would have been regarded by him as convincing proof of homicidal intent. No better evidence can be advanced to show the difference in the kind and scope of work of the surgeon of to-day with the one before the pre-antiseptic time than a comparison between the works of operative surgery of now and then. The sense of safety which took possession of the surgeon and an earnest desire to extend his skill to the successful treatment of affections which had heretofore baffled the efforts of the physician, brought on a warfare on almost every organ the seat of real or imaginary disease. The physician found himself suddenly out of his long time honored routine practice. The specialists utilized the opportunity and left no stone unturned to extend their sphere of activity. Brain surgeons, abdominal surgeons, neck surgeons appeared on the scene and filled the medical press with accounts of their wonderful surgical feats. The old-fashioned gynecologist, whose chief occupation consisted in introducing and removing pessaries, cauterizing so-called ulcers of the cervix, swabbing out the uterus and inserting medicated vaginal tampons, became restless and anxious to exchange harmless, bloodless measures for the knife and scissors. His desire for bloody operations was not satisfied by sewing lacerations of the cervix and perineum. He felt that in order to keep abreast with the spirit of the

present age he must increase his range of action, and in due course of time the ovaries, the Fallopian tubes and uterus became the theater of his aggressiveness. Even the acquisition of this additional territory did not satisfy his ambition. The adjoining great abdominal cavity, with its many important organs was looked upon with a jealous eye and it has been made the common camping ground of the general surgeon and the gynecologist for several years.

The throat and nose specialist, under the same influences, became disgusted with his brush, powder-blower and atomizers; sharp spoons, chisels and saws came into requisition, and the number of deflected septa, hypertrophic turbinated bones and third tonsil increased alarmingly and were attacked most energetically. The rectal specialist, who made a modest living by stretching the sphincter ani and ligating piles, saw a fortune in adding to his limited sphere of activity, resection of the rectum, and later, emboldened by his efforts carried his crusade to the topmost limits of the large intestine. The average orthopedist is no longer satisfied to correct deformities by the use of bloodless manual and mechanical measures; he has acquired a fondness for the knife, saw and chisel, so as not to be left behind in the procession. The genito-urinary surgeon has become tired of treating gonorrhea, strictures and syphilis; he can see no reason why he should not cut for stone, extirpate kidneys and perform plastic operations on the ureters.

The *furor operativus* manifested in these and other special departments of surgery, and its obvious results, render the standing and legitimate scope of the general surgeon very uncertain and indefinite at the present time. Let the general surgeon turn to the right or to the left, advance or retreat and he finds himself on reserved territory. As for the physician, he is expected to answer night calls, prescribe for diarrhea and whooping cough, watch cases of typhoid fever, measles, scarlatina and smallpox, and should complications arise and he does not report to the proper authority he renders himself liable to censure. Much of this ill-applied energy in the surgical world has resulted in detriment to patients and in retarding actual surgical progress. Operative surgery has been carried to extremes. A calm inspection of the ground that has been gone over will show "Some of the Limits of the Art of Surgery," the subject which I have chosen for this address.

Antisepsis and Asepsis.—The marvelous reduction in the mortality following injuries and operations which the present generation has witnessed is largely due to the prevention of wound complications by the employment of efficient antiseptic and aseptic precautions. Improved means of hemostasis and the more efficient treatment of shock might reasonably claim a certain share in bringing about such a desirable change in the results of surgical practice, but what has made our work more satisfactory and the statistics of various operative procedures more encouraging is the prevention of infection, the protection of the patient against the immediate and remote effects of sepsis and suppuration. The treatment of wounds with these objects in view has been simplified and rendered more efficient from year to year, but it can not be said that perfection has been reached. We are not yet in possession of an ideal absorbable ligature and suture material. The person who will show us how to prepare the animal ligature and suture in such a way that it will not only be absolutely aseptic but also antiseptic and without loss of its tensile strength, will be entitled to the lasting gratitude of the entire profession. The disinfection of hands and field of operation is open to future improvement. The important matter of drainage remains in anything but a satisfactory condition and the questions frequently raised, when to drain and how to drain, must be definitely settled by future experience and research. There are surgeons to-day who do not take into account the possible failure of antiseptic and aseptic precautions in estimating the dangers incident to operative procedures. Have we not all heard so-called abdominal surgeons say that an exploratory laparotomy is devoid of danger? Is it not a fact that the abdomen is being opened daily by men who have not the faintest idea of what they may have to do, simply because they regard such a step as harmless and free of danger and the shortest and easiest way to make a diagnosis? To say that such a blind confidence in the efficiency and safety of aseptic precautions is not in accord with the work of the conscientious surgeon is to put it mildly. It is fortunate for the patients of such ever-ready and self-confident operators that the peritoneum under ordinary circumstances can dispose of more pathogenic microbes without harm resulting than any other tissue of the body. If it were not such a serious matter it would be amusing to see how such men explain an occasional death that occurs in their practice in cases where it was least expected. If, perchance, a post-mortem examination was held, the first statement made is that the peritoneum showed no evidences of inflammation, consequently death must have occurred in consequence of shock, exhaustion, bronchitis, edema of the lungs, or heart failure. Very recently a prominent surgeon in giving his testimonial in recommending a certain kind of catgut, made the statement that he had performed one hundred consecutive major operations without having seen a single drop of pus. I have no reason to doubt the veracity of this gentleman's statement, but I am firmly convinced that it would be difficult, if not impossible, to duplicate such an experience in the practice of the average general surgeon.

I have made it a duty on my part to familiarize myself with the advances made in the technique of aseptic surgery and have the good fortune to perform all my operations in two of the best hospitals in Chicago and in a fairly well equipped college clinic, and yet I am only too willing to confess that I never finish my day's work without seeing pus. I have a painful recollection of two amputations for carcinoma of the breast on private patients, in both of which every possible precaution was carried out, and yet to my utmost disappointment, both of them died of the most virulent form of sepsis I ever encountered. To offset these cases I might refer to perhaps over two hundred similar operations in which, under much less rigid precautions, with few exceptions, faultless wound healing was obtained. I remember, too, a case of genu valgum in an adult treated by transcondyloid osteotomy under strict antiseptic precautions, where the operation was followed by violent suppurative osteomyelitis and extensive necrosis which for a long time seriously threatened the limb and life of the patient. I am sure that I am not alone in relating such experiences. Every surgeon is occasionally humiliated by such mishaps and here is the proper place to make open confessions. The careless, reckless remark so often made by men who ought to know better, that

the surgeon who understands his business can make and treat wounds which, if dressed properly, will heal without suppuration, has reached the ears of the legal profession and has already entangled many a worthy and honest member of our profession in the complicated and trying machinery of the law. I envy the surgeon who has implicit confidence in this or that method of preventing wound infection, but I am confident that I but voice the sentiment of the vast majority of surgeons by making the statement that one of the limits of the art of surgery at the present time is the inadequacy of our available resources in furnishing wounds, even under the most favorable circumstances, absolute protection against infection.

Phlegmonous Inflammation.—The employment of antiseptic and aseptic precautions in the treatment of intentional and accidental wounds has greatly diminished the frequency of progressive phlegmonous inflammation and its often disastrous consequences. That such an occurrence can not always be prevented, even by the most scrupulous care and attention to details, every surgeon of experience is willing to admit. In the most virulent forms of phlegmonous inflammation the most heroic and timely treatment, local and general, is often fruitless in averting speedy death. In the most desperate cases the surface lesion is often insignificant, the infection following the lymphatic pathways, soon reaches the general circulation resulting in death from acute sepsis before any decided gross pathologic lesions have appeared at the seat of infection or in any of the internal organs. How rapidly general infection may take place has been shown by the experiments of Schimmelbusch, who found microörganisms in the spleen five to ten minutes after infection of a wound. Colin and Niessen demonstrated by their experimental work that amputation a few minutes after inoculation, of the ears and limbs of rabbits with pure cultures of anthrax, did not protect the animals against generalization of the disease. Such cases in the human being fortunately are seldom met with, but when they do occur, the art of surgery is powerless in arresting the progress of the disease. Parenchymatous injections of solutions of carbolic acid or corrosive sublimate along the course of the inflamed lymphatics, and the internal use of alcohol in heroic doses promise the most, but in the great majority of cases the extension of the infection continues and terminates speedily in death from general sepsis. Whether bacteriology will furnish us with a more potent weapon in the treatment of such cases the future must determine. When the infection has resulted in suppuration the old adage *ubi pus ibi incisio* remains as true to-day as before the microbic origin of pus was known. In the treatment of diffuse phlegmonous processes it is now customary to make free incisions, establish free drainage and disinfect the cavity by flushing it freely with a safe and yet efficient antiseptic solution, such as a saturated solution of acetate of aluminum, a 3 per cent. solution of carbolic acid or a 1:5,000 solution of corrosive sublimate and apply to the part hot compresses wrung out of the same solution. A few years ago Helferich advised laying open of the entire cavity by a single incision, recently Kocher pleads in favor of small incisions for the reason that pus microbes multiply more rapidly when freely supplied with oxygen. I believe the best treatment is half way between these two extremes, that is, multiple incisions large enough to insert drains the size of the little finger with a view of establishing a perfect system of drainage. We can not expect much from a single disinfection. In severe cases in which life is threatened by sepsis I invariably resort to continuous irrigation with a saturated solution of acetate of aluminum, a non-toxic and yet very efficient antiseptic agent. The inflamed part should be immobilized and maintained in an elevated position until the inflammatory edema has subsided. The same treatment yields the most happy results in the treatment of acute suppurative inflammation of the large joints. One of the great shortcomings of the art of surgery to-day is the lack of measures to deal more efficiently with progressive suppurative affections and secure for suppurative cavities an aseptic condition in a shorter and more direct way. In cases of circumscribed abscesses it is generally believed that the sooner the incision is made the more prompt will be the relief and the more speedy the cure. Clinical experience has not confirmed these expectations. The old surgeons applied emollient poultices until the abscess became soft before they used the bistoury. No modern surgeon has any use for the filthy germ-breeding poultice, for which he has substituted the antiseptic, moist, hot compress which answers the same purpose, as it furnishes the necessary heat and moisture, and at the same time prepares the surface for the incision. We are, however, almost as powerless as our forefathers in limiting, much less aborting, a suppurative inflammation. One of the greatest and most useful innovations in surgery would be a remedy, local or general, which would enable us to abort the process of destruction after the classical symptoms which characterize suppurative inflammation have set in. We must look to bacteriology to fill up this most important gap.

Acute Suppurative Osteomyelitis—Closely allied to phlegmonous inflammation of the soft tissues is acute suppurative osteomyelitis as it is caused by the same kind of microbes and results in more or less extensive destruction of tissue. The etiology and pathology of this disease are now well understood and upon them is based the early operative treatment which is generally endorsed by the profession at the present time. The danger from general sepsis is greater in the more serious forms of osteomyelitis than a similar affection of the soft tissues owing to the location of the primary focus of infection and the frequency with which the adjacent large joints become implicated during the progress of the disease. The early removal of the osteomyelitic product by operative interference as a rule relieves pain promptly, limits necrosis, guards against joint complications and minimizes the danger from general sepsis. Immobilization of the affected limb in proper position and the exposure of the osteomyelitic focus by the use of the chisel or gouge as soon as a positive diagnosis can be made are the modern resources which have succeeded in greatly reducing the mortality of this disease as well as its immediate complications and remote consequences. There are, however, cases of acute osteomyelitis in which the earliest intervention of the art of surgery is powerless in preventing death from general sepsis. These are the cases of osteomyelitis in which simultaneously or in rapid succession a number of the long bones become involved and where the local signs and symptoms are overshadowed by the general symptoms which point to a progressive sepsis and which are so seldom favorably influenced by either local or general treatment.

Tuberculosis of Joints.—Only a few years ago the surgeons who paid special attention to diseases of the joints were enthusiastic advocates of early resection or arthrectomy in cases of tubercular joint affections. Typical resections were made regardless of the anatomical location or the extent of the disease. It was believed that such medical treatment would succeed in eliminating the local affection and in preventing the extension of the infection to distant organs by reinfection from the peripheral focus. Statistics prove that these hopes are unfounded and conscientious and thinking surgeons have substituted largely in place of operative treatment conservative measures. The surgeon forgets too often that tuberculosis of joints seldom appears as a primary affection but as a rule appears as a peripheral manifestation of the existence of an antecedent perhaps undiscoverable tubercular affection of another organ, hence the removal of the accessible tubercular product does not necessarily protect the patient against tuberculosis of other joints or organs or general miliary tuberculosis. It is on the other hand a familiar clinical fact that the operative treatment of joint tuberculosis has not infrequently been followed by tuberculosis of other organs or general miliary tuberculosis. The short-comings of the art of surgery are well brought forward in the treatment of tubercular joints. In large clinics where but a few years ago resection of joints for tuberculosis was a daily occurrence such operations are now rarely witnessed. This change in practice is largely due to the beneficial effects obtained from intra-articular and parenchymatous injections of iodoform glycerin injections. I have resorted to this treatment in hundreds of cases with the most satisfactory results. In about one-half or two-thirds of all cases of uncomplicated joint tuberculosis this treatment proves curative. It is of special value in the treatment of tubercular abscesses in communication with a tubercular joint or bone. From one to three or four injections usually suffice in obliterating the abscess cavity. The tapping and injection must be done under the strictest antiseptic precautions lest the operation will aggravate the case, perhaps render it hopeless, by becoming the direct cause of a mixed infection with pus microbes. As some persons are peculiarly susceptible to the toxic action of iodoform the minimum dose two drachms of a 10 per cent. emulsion should be used in the beginning. In cases complicated by renal affections this caution should be increased as any affection of the kidneys retards the elimination of the iodoform and thus increases the danger from intoxication. Another important precaution in tapping a tubercular abscess is not to puncture the skin where it is thin and cyanotic as when it is made in such a place the puncture is very liable to give rise to a fistulous opening and consequently increased risk of infection with pyogenic microbes. The puncture must be made through normal skin, if need be some distance from the abscess, and after removal of the canula it should be sealed with iodiform collodium and a small pledget of sterile cotton. Immobilization of the limb or part thus treated is often useful but not always necessary. During the process of repair initiated by the iodoform injections the capsule of the joint often undergoes great contraction which if not counteracted by an appropriate mechanical support may result in a deformity difficult of correction short of operative interference. In cases of joint tuberculosis in which this treatment does not succeed in effecting a cure it will prove to be the best possible preliminary treatment to a successful arthrectomy or atypical resection. Iodoform is absolutely useless in the treatment of tubercular affections complicated by suppuration. The antibacillary effect of iodoform in such cases only asserts itself after the pyogenic product and its causes have been eliminated by operative measures or chemical disinfectants or by a combination of these two antiseptic resources. In cases in which the iodoform treatment fails or in which it is contraindicated, arthrectomy and atypical resection have been largely substituted for typical resection.

Malignant Tumors.—The imperfections of the art of surgery become very apparent in the treatment of far-advanced malignant disease of any part or organ. The essential cause of carcinoma and sarcoma remains to be discovered. The science of surgery must first divulge the true nature of tumors before we can expect a decided advance in their more successful treatment. The essential features of the modern treatment of malignant tumors may be summed up very briefly as follows: Operate early and thoroughly. The treatment of unoperable sarcoma by injections of the sterilized toxins of the streptococcus of erysipelas and the bacillus prodigiosus has not filled the expected results. In my paper on this subject read in the Surgical Section of this Association at the last meeting I gave the results of my experience with this treatment. An additional experience since that time only confirms my views expressed at that time concerning the utter lack of curative power of these toxins in the treatment of genuine cases of sarcoma. The microscope is no infallible means of diagnosis in differentiating between small round celled sarcoma and some of the granulomata. The curative effect of a remedy can not be established unless an absolutely correct diagnosis can be made of the disease in the treatment of which it is employed. The discovery of some remedy, which by its local or general action would correct erratic cell growth and transform embryonic into mature cells might possibly change malignant into benign tumors and by doing so deprive them of their malignant clinical tendencies. Experimental researches in this direction might possibly lead to a rational treatment of malignant tumors short of a resort to the knife or caustics. At the present time the surgeon's resources in the treatment of malignant tumors are largely limited to an early and thorough use of the knife. Every surgeon deplores the fact that with the exception of carcinoma of the lip or of parts similarly exposed the patients who apply to him for surgical treatment with few exceptions are suffering from malignant tumors which extend beyond the organ primarily affected and have given rise to regional dissemination, general metatasis or both. For instance, of the over 200 cases of carcinoma of the breast which have come under my own observation I remember only one case in which during the operation, the axillary glands were found unaffected and in this case the columnar celled carcinoma, the size of a pea, had obstructed a duct, in consequence of which a retention cyst the size of a walnut developed, for which the patient applied for treatment. In cases of carcinoma of the uterus that come to me for examination and treatment, I find that only one out of every eight or ten cases is a proper case for a radical operation. In more than one-half of my cases of carcinoma of the rectum I refuse extirpation of the affected organ, and advise in its place an inguinal colostomy, because the disease has extended

to the pelvic connective tissue, the retro-peritoneal lymphatic glands or adjacent organs. Of eighteen cases of pyloric carcinoma of the stomach subjected to operative treatment, I found the disease limited to the part primarily affected only in one case; in the remaining cases the disease had extended invariably to the lymphatic glands, and in some of them to the adjacent organs, liver, gall-bladder, pancreas, omentum and colon. It is the operative treatment of advanced cases of malignant disease that brings so little benefit to the patient and so much disappointment to the surgeon. Asepsis and a greatly improved operative technique have done much to improve the results of operative treatment of malignant tumors, but they have not succeeded in doing away with well recognized restrictions upon the art of surgery to which I now desire to call your attention. There is perhaps, no other department in surgery which presents more diversity of opinions than the selection of cases of malignant tumors for operative treatment.

The conscientious surgeon looks as carefully for contraindications as for indications for radical operations. He is concerned more for the welfare of his patient than his own selfish interests. A prospective liberal fee has no influence in changing his decision. He makes a careful examination of his patient, the tumor and its environments, before he recommends an operation. He has learned from sad experience that aside from justifiable palliative operations for obstructive malignant affections, imperfect operations have proved as detrimental to his patients as to his reputation. He looks the ground over carefully before he decides to attempt a radical operation. The squeezing out of a fixed carcinomatous uterus between forci-pressure forceps is not likely to prolong the life of the patient or increase the reputation of the surgeon who ignores to such an extent the limits of the art of surgery. The removal of a carcinomatous breast without a thorough clearing out of the axillary space may increase for the time being the bank account of the operator, but it will surely prove a detriment to the patient. The partial or complete excision of the rectum for carcinoma complicated by regional infection is an operation attended by great immediate risk to life without a ray of hope of effecting a permanent cure. Such bold and reckless overstepping of the limits of the art of surgery is not calculated to increase the estimation of our profession in the eyes of the public or to receive the sanction of the conscientious, discriminating surgeon. The radical removal of a malignant tumor means more than the extirpation of the primary tumor; it means the removal of every malignant cell, whether in the immediate vicinity of the primary growth or in the same region. Evidences of distant metastasis furnish a positive contraindication to operative interference. Regional dissemination beyond the reach of complete removal of every vestige of tumor tissue, local and regional, without imminent risk to life, constitutes an equally forcible argument against a radical operation. Large surface defects made by extensive radical operations should always be covered by a plastic operation or by Thiersch's method of skin grafting. It has always been my aim to cover the wound with skin by either of these methods immediately after the extirpation of the tumor for the purpose of securing healing by the first intention, as I am satisfied that the slow process of healing of large surface defects by granulation, cicatrization and epidermization is conducive to an early local recurrence.

Surgery of the Three Great Cavities.—The systematic invasion of the three great cavities of the body for the treatment of injury or disease is one of the great triumphs of modern surgery. Our ancestors entertained a well-founded dread for operations which necessitated opening of any of the great serous cavities, knowing from experience their great susceptibility to septic infection. Recent experience has shown that any of these cavities can be opened for diagnostic or therapeutic purposes without much danger provided the operation is performed under strict antiseptic precautions. The prevention of septic complications by asepsis has been the means of creating visceral surgery. The sense of safety in subjecting the different viscera to direct operative treatment which has taken possession of the profession has enlarged to a wonderful extent the field of operative surgery, but it has carried at the same time the work of the ambitious enthusiastic surgeon beyond the limits of his art. Many of the bold attempts upon the organs of the three great cavities are far beyond the legitimate restrictions established by the science of surgery. The mania for achieving new victories outside of the sphere of legitimate rational surgery has neither brought lasting reputation to the adventurers nor benefit to suffering humanity. Many of the new operative procedures remind one more of sensationalism than the product of mature, deep surgical reasoning. The accounts of new operations that are being constantly devised have left operative surgery in a state of confusion. Works on operative surgery that left the press six months ago are obsolete or at least unsatisfactory to-day. The technique of nearly every operation is constantly undergoing changes by the addition of important or unessential modifications. Nearly every surgeon has a flaming desire to connect his name with an instrument of his invention, a new operation or a modification of an old one. A new operation is devised, a case is found upon which it is tried, and if the result is in any way favorable an account of it is sure to find its way promptly into the current medical literature. Many members of the medical profession are willing and ready imitators, who are always anxiously waiting for new discoveries and improvements, ever ready to apply them in their practice without questioning their utility or justifiability. This blind imitation of the practice of others has been the source of great harm to confiding patients and has exerted a powerful inhibitory effect on the true progress of surgery. This is an age of bold surgery. The surgeon who is careful in the selection of his cases, slow and painstaking in his work, need not look for recognition on the part of his students or colleagues; it is the man who lays the abdomen open by a single stroke of his knife, removes two healthy ovaries and closes the incision and returns his patient to her room in seven minutes, who commands the attention of his audience and bears with a self-confident dignity the proud distinction of being a bold and brilliant operator. In calling your attention to the limits of the art of surgery in the treatment of injuries and diseases of the organs contained in the three great cavities, time will only permit to point out a few of the most flagrant transgressions of the established principles of surgery during the last few years.

Surgery of the Skull and Brain.—The use of the

trephine in the treatment of fractures of the skull has had a varied experience since the time of Hippocrates. Trephining of the skull for injuries is one of the oldest operations in surgery. From time to time strong arguments have been made against the indiscriminate operating for fractures of the skull. Stromeyer and his followers abandoned the operation of trephining, believing and claiming that the operation resulted in more harm than good to the patient. It is not difficult to conceive that at that time the conversion of a subcutaneous into an open fracture was attended by great risks from infection. The minimizing of the danger from infection by aseptic precautions again brought the trephine into general use not only in the treatment of fractures of the skull, but also in the treatment of pathologic intracranial lesions of a non-traumatic origin. Many surgeons now advocate trephining in all fractures of the cranial vault, claiming that the operation would reduce to a minimum the dangers from remote complications such as obstinate headache, epilepsy and insanity. The question arises, is such a position in consonance with rational surgery? Every surgeon knows that such remote complications after fracture of the skull not subjected to trephining are rather the exception than the rule. It is evident that operative interference in such cases has been carried to extremes. Even under the protection of aseptic precautions, the transformation of a closed into an open fracture of the skull is attended by certain risks which no surgeon can afford to ignore and which must be taken into careful consideration before operative interference is determined upon. This advice applies with special force to the treatment of fractures of the skull in children, as in them spontaneous elevation of the depressed fragment or fragments is frequently observed during the process of repair. There is no rule in surgery without its exceptions, hence the advice to use the trephine in fractures of the skull with depression without regard to the age of the patient or the presence or absence of symptoms, lacks a moral as well as a scientific foundation. The art of surgery has its well-founded limits in the treatment of fractures of the skull. In my opinion, operative interference is absolutely indicated in fractures of the cranial vault under the following circumstances: 1. All open fractures, including gunshot and punctured fractures. 2. Depressed fractures attended by well defined symptoms caused either by the depression or intracranial complications. 3. Rupture of the middle meningeal artery with or without fracture of the skull. The use of the chisel or trephine is superfluous and often harmful in the treatment of subcutaneous fractures of the vault of the skull with or without depression, more especially in the case of children. The operation of trephining in the prevention of remote complications of fracture of the skull is often powerless, owing to the existence of visceral lesions which it can neither remove nor render harmless. The indiscriminate use of the chisel and the trephine in the hands of the inexperienced practitioner is fraught with danger and should not be encouraged by teachers and expert surgeons. Such teachings and practice are in conflict with the correct principles which should govern the true art of surgery. Brain surgery is of recent origin. It is in this department of the operative work of the surgeon that art has gone far in advance of the science of surgery. Cerebral localization and aseptic surgery have made it possible to treat a few intracranial lesions successfully by direct operative interference. Cerebral localization is in its infancy, and the minutest aseptic precautions do not absolutely protect against infection. A few years ago the columns of the medical press brought glowing accounts of the removal of brain tumors. Patients were exhibited at the meetings of different medical societies with enormous cranial defects and ghastly depressions marking the place from whence a large glioma had been removed successfully. Such cases aroused the most intense attention and interest at the time, but where are they now? Subsequent reports failed to appear, and an ominous silence remains regarding their ultimate fate. Many of the cases of tumor of the brain operated upon who never recovered from the immediate effects of the operation were never reported, and those who were fortunate enough to survive the fearful ordeal, after a longer or shorter interval joined the silent majority. One of the well defined limits of the art of surgery is the operative treatment of malignant tumors of the brain. Tapping and drainage of the lateral ventricles as taught and practiced by Dr. W. W. Keen, may and undoubtedly will become in the future a useful and legitimate surgical resource in the treatment of inflammatory affections of that part of the brain, but so far it has not yielded encouraging results. When Lannelongue devised linear craniotomy for the liberation of the undeveloped imprisoned brain in the skull of infantile idiots, his doctrine was received with open arms by many surgeons who occupy the front rank in the profession. The lay and medical press vied with each other in bringing before the general and medical public the wonderful results following the use of the trephine, chisel and rongeur forceps in opening the skulls of such unfortunate children. Many of these little innocents of course succumbed to the immediate effects of the operation, but this did not subdue the ardor of the surgeon, as he had been instrumental in transferring an object of pity to that happy home where microcephalus is unknown and had relieved the family of a troublesome trust. Where are the cases that have been permanently benefited by the operation? Ask Lannelongue whether his hopes have been realized. I am free to confess that I have never been able to muster my courage to attack the skull of a poor, innocent and yet happy microcephalic child, because I have always regarded the operation as useless in promoting brain development. The responsibility of the surgeon is not limited by the defective mental development of the child nor the importunity of the parents in demanding the operation at all hazards. The surgeon should stand guardian over such a charge, mindful of the limits of the art of surgery. Have we a right to estimate human happiness? The driveling idiot has many enjoyments and pleasures that you and I know nothing about. His responsibilities to God and man are limited and his existence on earth is a long, happy dream, which only ceases when the soul leaves the imperfect body and returns from whence it came, where mental distinction is unknown. The operative removal of inflammatory products from the cranial cavity and the brain has yielded the most satisfactory results, and constitutes one of the most important achievements of modern surgery. This part of cerebral surgery will reach perfection with the progress of cerebral localization, and should be encouraged and cultivated by all who are desirous of extending the present limits of the art of surgery.

Surgery of the Chest.—Modern surgery has done much toward the alleviation and cure of injuries and diseases of the organs of the chest, but it is here also that we are confronted by well defined limitations of the art of surgery. The successful treatment of hydrothorax and empyema of the pleural cavity is the result of a better knowledge of their etiology and pathology and an improved operative technique under strict aseptic precautions. Tapping of the chest for tubercular hydrops followed by iodoform glycerin injection has done more for this class of patients than counter irritation and the internal administration of digitalis, squills, acetate and iodid of potassium. Free incision of the empyemic pleural cavity after resection of one or more ribs, followed by efficient tubular drainage, has become an established practice by almost universal consent. The treatment of chronic empyema with thickened pleura and collapsed adherent lung by Estlander's multiple rib resection or Schede's thoracoplastic operation has yielded brilliant results. The treatment of abscess of the lung by rib resection, free incision with the knife point of the Paquelin cautery and tubular drainage has been the means of saving many a precious life, which, without the aid of the surgeon would have been doomed to a premature death. With few exceptions this is about all that has been accomplished by the surgery of the chest. It is true that a few surgeons have been fortunate enough to cope successfully with a few affections of the heart and its serous investment, the pericardium. Tapping of the pericardium for serous effusion has become one of the established operations in surgery. A very few cases of pyopericardium have been brought to a successful termination by free incision and drainage. We are familiar with isolated cases in which bold surgeons exposed the heart by a free incision for the removal of a foreign body, or sutured a visceral wound, and their effort was crowned by success, but on the whole we are painfully conscious of the fact that the art of surgery has done very little toward the successful treatment of injuries and diseases of this organ. Many have been the efforts of surgeons to supplant the physician in the treatment of pulmonary tuberculosis, the results of such efforts are familiar to you all. In the very nature of things, such trespassing upon the legitimate field of the physician has been followed without exception, by an ignominious failure. It is unfortunate, but true, that the surgical treatment of pulmonary tuberculosis by direct surgical intervention is beyond the present legitimate limits of the art of surgery. Surgery has done very little during the last two decades toward a betterment of the treatment of penetrating stab and gunshot wounds of the chest. The careful surgeon knows that the hermetic sealing under aseptic precautions of the wound of entrance and exit, if such exists, affords the greatest degree of safety in arresting hemorrhage and in preventing septic complications. Free incision of the cavity of the chest with a view of arresting hemorrhage by ligature, or tamponade from any of the organs which it contains is attended by such great immediate risks to life that the possible benefits to be derived from it are more than overbalanced by the immediate dangers which attend such an aggressive course of treatment. The removal of malignant tumors of any of the organs of the chest is beyond the present limits of the art of surgery.

Surgery of the Abdomen.—For reasons that do not require an explanation here the abdominal cavity was largely a *terra incognita* to the surgeon of less than half a century ago. To-day it is the favorite battle-ground of the average surgeon and the select field of the so-called abdominal surgeon.

The bold surgery of to-day upon the organs of the abdominal cavity is largely due to the comparative safety with which the peritoneal cavity can be invaded under proper aseptic precautions. This new field for the display of surgical talent and ingenuity has been diligently cultivated in a legitimate way by the honest progressive surgeon, but it has also been made the playground of unscientific sensational surgery by men who are ignorant of the legitimate limits of the art of surgery. The simple fact that any of the abdominal organs, in part or in whole, can be removed successfully without much danger to life does not establish the legitimacy of the surgical procedure. Billroth, one of the greatest, and certainly one of the most honest surgeons of this age, did not realize the expectations he entertained in regard to the benefits to be derived from direct surgical intervention in cases of carcinoma of the stomach, justifying surgical interference. Notwithstanding the wonderful improvements in the technique of operations upon the stomach, partial gastrectomy and pylorectomy have yielded anything but encouraging results. In nearly 50 per cent. the patients subjected to radical treatment for malignant disease of the stomach, succumbed to the immediate effects of the operation. In all of the cases which survived the operative ordeal, the patients succumbed to a relapse in from a few months to several years. I have opened the abdominal cavity for the surgical treatment of malignant disease of the stomach nineteen times, and only in one case did I find the disease limited to the organ primarily affected and in this case the general health of the patient had been so much deteriorated by the obstructive pyloric carcinoma as to contraindicate a radical operation, in all of the remaining patients a pylorectomy or partial gastrectomy was out of the question, as the carcinoma of the pylorus or stomach had extended to adjacent organs or had given rise to regional infection through the lymphatic glands sufficiently to contraindicate any attempts at radical removal of the disease. The legitimate limits of the art of surgery in the treatment of malignant disease of the stomach embrace the cases in which a sufficiently early diagnosis can be made when the malignant disease is limited to the organ primarily involved and the strength of the patient is adequate to overcome the immediate effects of the operation. The removal of the carcinomatous pylorus or any part of the stomach after the malignant disease has extended to adjacent organs or after regional infection through the lymphatic glands and channels has taken place is tampering with the present limits of the art of surgery. The palliative operations for carcinoma of the cardiac and pyloric extremities of the stomach have yielded excellent results, and should receive the sanction of every surgeon who has the best interests of his patients at heart. Witzel's operation for establishing an external gastric fistula in cases of malignant obstructive tumors at the cardiac orifice of the stomach, and Rockwitz-Wölfler's operation for pyloric carcinoma are the palliative operations which promise the most with the least immediate risks to life in all cases of malignant tumors of the stomach which give rise to obstruction. The treatment of intestinal obstruction by surgical inter-

vention has become an established custom. Physicians and surgeons imbued with a proper moral and scientific sense, recognize the importance of early surgical interference in all cases of intestinal obstruction due to mechanical causes. An early positive diagnosis is an essential prerequisite to success in such cases which must be followed by prompt action on the part of the surgeon. Intestinal surgery will celebrate its greatest triumphs with the progressive development of our diagnostic resources in the early recognition of the nature and location of the mechanical causes which give rise to intestinal obstruction. Volvulus and invagination, some of the most serious forms of mechanical obstruction, if they could be recognized within a few hours of their appearance and subjected to surgical treatment at once, would no longer figure so conspicuously in our mortality reports. The division or excision of a constricting band in the treatment of intestinal obstruction from such a source, if performed in time would yield a very small mortality, but if not brought within the present limits of the art of surgery, such cases seldom recover from the immediate effects of the operation.

The radical treatment of malignant tumors of the intestinal canal has not been attended by satisfactory results as a rule. In the majority of cases the operations were postponed until the malignant disease gave rise to symptoms of obstruction, when it was usually found that the carcinoma had passed beyond the legitimate limits of a radical operation. The implication of adjacent organs and extension to the lymphatic glands of the mesentery must be recognized at the present time as positive contraindications to a radical operation. With few exceptions the transgression of this rule in cases in which the patients survived the immediate effects of the operation was followed by an early recurrence of the disease to which the patient rapidly succumbed. Palliative operations in cases of malignant obstruction of the intestinal canal above the rectum, by establishing an anastomotic opening between the intestine above and below the obstruction, have become recognized procedures in surgery. In establishing such a communicating opening, the employment of mechanical devices, such as the metallic buttons of Murphy, Ramaugé and Chaput, which must pass the intestinal canal unchanged, is a procedure fraught with more or less danger, which is being recognized more as the experience with them increases. In my own practice I have largely dispensed with the perforated decalcified bone-plates and now rely more frequently on the needle and thread in performing such operations and the mass of the profession is in accord with this practice. The custom followed by many American surgeons to remove the appendix in all cases in which a diagnosis of appendicitis is made, is a very harmful one. The removal of the appendix should be limited to those cases in which, during the first attack symptoms arise which portend danger to life and relapsing appendicitis. Some cases of appendicitis yield to medical treatment, and in a large percentage of such cases the patients remain free from a second attack. Pancreatic surgery at the present time is limited to the treatment of cysts by establishing and maintaining an abdominal fistula until the cyst becomes obliterated. The extirpation of pancreatic cysts and partial pancreatectomy for malignant disease are operations fraught with danger and do not come within the legitimate limits of the art of surgery at the present time.

Much has been done of late in the way of developing and enlarging the sphere of the surgery of the liver and the biliary tracts. Recent clinical experience and the results of experimental research have shown that a considerable portion of the liver can be removed for injury or disease with a fair expectation of success. The treatment of gunshot and stab wounds of the liver by laparotomy and suturing or tamponing of the visceral wound has yielded encouraging results. A number of successful cases of excision of isolated adenomatous tumors of the liver have enriched and graced our modern surgical literature. The operative removal of malignant tumors of the liver is an undertaking far beyond the present limits of the art of surgery. The successful treatment of abscess of the liver and echinococcus cysts by direct surgical intervention is generally recognized as one of the greatest achievements of abdominal surgery. The pioneer work of Sims and Kocher in laying the foundation for a rational treatment of impacted gallstones in any part of the biliary tracts has yielded unexpected results and has been the means of saving thousands of lives by averting the dangers from perforation and cholemia by a timely surgical intervention. The removal of calculi from the gall bladder can now be accomplished with very little danger to life. The cystic and common duct the seat of an impacted calculus are now exposed and incised, the calculus extracted and the wound sutured or drained, with a well-founded hope that the patient will recover, and that the operation will result in restoring the free flow of bile through the biliary passages. I have reason to believe, however, that the surgery of the biliary passages has been carried too far. That unnecessary operations have been performed upon the gall bladder and the biliary ducts, no one will deny. The simple fact that a patient is suffering from gallstones does not furnish a positive indication for surgical interference. The physician and nature's resources should be given a chance and the surgeon's services should be limited to those cases in which positive indications for operative treatment present themselves. The surgeon who recorded the first successful case of cholecystotomy has since become the victim of gallstones, but instead of calling upon one of his colleagues to open the gall bladder and remove the stones, he made a pilgrimage to Carlsbad and was promptly relieved of his sufferings. Cholecystenterostomy should only be performed in cases in which the common bile duct is permanently occluded by an impacted irremovable gallstone or cicatricial stenosis. Catheterization of the cystic and common bile ducts preceded or followed by dilatation by the use of laminaria tents in the treatment of impacted stones and cicatricial stenosis after the formation of a gall bladder fistula is a much neglected part of the surgery of the biliary passages and of sufficient importance to invite new trials and investigations. For substantial reasons abdominal nephrectomy and nephrotomy have been supplanted by lumbar operations. The treatment of tubercular hydrops of the peritoneum by incision, drainage and iodoformization remains in favor with the profession, and continues to yield the most satisfactory results.

Organs of Generation.—The greatest onslaught of modern surgery has been upon the organs of generation, male and female. It is somewhat strange that the organs created for distinguishing the sex and for the increase of the human species should have been

singled out as innocent objects of so-called modern aggressive surgery. The future historians who will record the work of many gynecologists belonging to the present generation will have reason to express their surprise at what disasters the art of surgery has produced when plied in cases far in advance of a scientific foundation. Here and there we hear a feeble voice protesting against the indiscriminate surgery upon the organs of generation of the opposite sex, but the mutilating work continues in spite of such opposition and well-meant advice. Every competent and honest gynecologist knows that in his sphere the art of surgery has been thoroughly abused. It is difficult to assign tangible reasons for such a fearful state of things. It appears to belong to the spirit of the present generation, the outcome of ceaseless unrest in pelvic surgery. When I arraign the gynecologists before this body composed of representative medical men of this country for innumerable and inexcusable transgressions of the rules which ought to govern and control the art of surgery, I do not include the scientific, honest, conscientious workers in that department of surgery, but my remarks will apply to a class of routine operators which has recently grown to alarming dimensions not only in this but in nearly every country which has been penetrated by the dim rays of so-called bold surgery. It is a subject that I would gladly pass over in silence, but you have imposed upon me a trust which I can not ignore and I stand here in the capacity of the conservative element in these days of wild, unfounded surgery to place myself on record in protesting against the unnecessary mutilation of the sexual organs of either sex, willing to stand or fall by the sentiments of the great mass of general practitioners, which after all must be regarded as the backbone and final tribunal of our profession. The new generation of doctors finds no longer satisfaction in practicing their profession in some rural district. The young practitioners have their eyes on large cities and have heard of enticing fees paid to specialists for insignificant operations. Why buy a horse and saddlebags when a fortune awaits them in devoting themselves to a specialty, more particulary gynecology? The recent graduate or the man who has become disgusted with country practice seeks a much employed gynecologist, follows his work for a month or two and returns to his prospective field of labor a full-fledged specialist. He is now ready to extirpate the uterus, remove ovaries and Fallopian tubes, sew imaginary lacerations of the cervix and perineum. Do you suppose that such an aspirant for gynecologic fame ever examines a woman and finds her perfect? Is it not true that in nine out of ten cases he finds something to mend? That my views are real and not visionary let me relate a few instances. A number of years ago a young lady accompanied by her grandmother applied to me for treatment for a neurasthenic affection. I was informed by the grandmother that a few days before they had consulted a young gynecologist, who made a hasty vaginal examination, looked wise and informed them that he had found the source of all trouble in the form of a laceration of the cervix, which would require an operation. As a matter of course the grandmother asked for an explanation of the injury and was promptly informed that it was one of the common accidents of childbirth. As the patient was unmarried and had never been pregnant this explanation proved unsatisfactory to the interested parties and no arrangements were made for the prospective trachelorrhaphy—upon a virgin uterus. Not long ago an unmarried woman came under my care who had been told by an ambitious gynecologist that she was suffering from a myoma of the uterus which would necessitate a vaginal hysterectomy. I found a sharp anteflexion, the anterior wall of the uterus being prominent and somewhat edematous had been mistaken for a tumor and nothing short of a hysterectomy would satisfy the operator. This patient recovered under conservative treatment without the loss of an important organ. The cases which I have just cited escaped mutilating operations by doubting the diagnosis of those to whom they first applied for treatment; others are less fortunate. Suffering woman will believe in and submit to almost everything. In fact it has become almost a fashion for women suffering from real or imaginary affections of the genital organs to consult a gynecologist as regularly as her dentist or dressmaker. Not long ago a girl 18 years of age was brought to me with the information that she became epileptic when 7 years of age, that later, when menstruation was established, the attacks never occurred during the menstrual period, and yet both of her ovaries were removed by a gynecologist. As could be expected, the epilepsy remained and when I saw her she was on the verge of insanity. Time does not permit to cite additional illustrations showing criminal trespass upon the legitimate limits of the art of surgery in the treatment of real or imaginary ailments of the female organs of generation. Every practitioner has seen such instances as I have cited above. Has humanity been the gainer since the gynecologists became surgeons? This is a timely and serious question. Is the average woman who has passed through the hands of one or more gynecologists physically and mentally in a better condition than our mothers of fifty years ago, whose ovaries were safe and who knew but little about speculums and vaginal douches? Let the older members of our ASSOCIATION answer this question. When the venerable and distingnished Emmet devised his operation for laceration of the cervix he pointed out clearly what conditions called for and were benefited by trachelorrhaphy. The operation was received with enthusiasm and everyone present here knows how much it has been misapplied. It is safe to assert that not one in ten cases that have been operated upon was the operation justifiable or proved of any benefit to the patient. Emmet's teachings and practice were in consonance with sound pathologic principles but hundreds of imitators were less discriminating in the selection of cases, and performed the operation simply because they found a laceration of the cervix, irrespective of the existence of symptoms which could be referred to this condition. Laceration of the perineum is another favorite subject of the "amateur" gynecologist. The extent of laceration and the symptoms caused by it are not always taken into careful consideration in deciding upon the propriety of an operation. To "do a perineum" in five or seven minutes still serves as an attraction for the lookers-on in many private hospitals and gynecologic clinics. I fully appreciate the value of a well-performed perineorrhaphy in proper cases, but I am equally well satisfied that the operation has often been performed unnecessarily, and that it requires more than five or seven minutes to perform it properly. The late lamented Robert Battey opened a wide field for operative gynecology. This modest, honest worker conceived the idea that the removal of

the normal ovaries would become a useful surgical resource in the treatment of certain nervous affections which before had baffled the skill of physicians. It required some time and the additional support of Hegar and Tait for his views to become popular among his colleagues. Battey lived long enough to learn that his example and teachings have created a wave in the misapplication of the art of surgery which to-day remains mountain high, and it is difficult to tell where it will end or where a rock sufficiently high and strong will be found to break its force. The frequency with which women are being castrated to-day is one of the most flagrant transgressions of the limits of the art of surgery. It is not unusual for one operator to exhibit from five to six normal ovaries as the result of half a day's work. All kinds of excuses are made for this kind of surgery. The ovaries are too large, cirrhotic, cystic, or perchance a ruptured Graafian follicle is discovered, when he consoles himself that he has removed an apoplectic ovary. Where is this wholesale unsexing of our female population going to end? The beginning of the end has come. The army of women minus their essential organs of generation is beginning to raise its voice against such mutilating work. The number of women who willingly sacrificed their ovaries to restore their shattered health without securing the expected relief has increased to an alarming extent. This sad experience has made the gynecologists more desperate and bold. They have been importuned by their castrated, tubeless patients to such an extent that the art of surgery was again resorted to. The uterus, which heretofore had been comparatively safe, was now selected as the offending body, and vaginal hysterectomy became at once a popular operation. Many atrophic uteri remaining after removal of their appendages have been removed in a vain hope of securing permanent relief. Vaginal hysterectomy for diseases other than carcinoma is now at its height. The uterus is being removed for hypertrophy, endometritis, flexion, version and minute myofibromata. This important organ is no longer safe if it is in the vicinity of a pelvic abscess. Perchance a healthy uterus is removed under the pretense of securing a more direct route to a focus or foci of pelvic inflammation. It is needless to say that most of the surgeons who clamor for the removal of the uterus through the vagina for insignificant affections or inflammatory lesions of adjacent parts, do so by the use of compression forceps. It is no great surgical feat to squeeze out an inflamed or displaced uterus between compression forceps. It is difficult to say where this rage for the removal of the female sexual organs will end or what organ will be the next battle ground for the aggressive gynecologists. The clitoris, the vagina, the cervix uteri, the ovaries, the Fallopian tubes, the uterus and its ligaments have successively passed through a trying ordeal of the *furor operativus*. What the next fad will be is impossible to foretell. As one operation after another is falling into a well deserved desuetude new ones will have to be devised to gratify the whims of the patients and the ambitions of the gynecologist. I have portrayed to you only a few of the excesses of the art of surgery as applied to the female organs of generation, but enough has been said to show you that it is time to call a halt. Further depredations can best be avoided by the general practitioners to whom most of the patients first apply for relief. Let them do their duty toward their patients. Many of the minor affections of the uterus and its appendages are within the reach of intelligent general and local treatment without a recourse to the knife. If gynecology is to live and become a real benefit to women suffering from pelvic disease, it must become more conservative. We all appreciate what surgery has done in prolonging life and in mitigating suffering in the treatment of ovarian cysts and the removal of the uterus, the seat of symptom-producing myofibromata. What I am objecting to, and on good ground, is the undiscriminate operating upon the female organs of generation for imaginary or insignificant affections. This is an evil that must be apparent to all and that the leaders of gynecology must assist us to suppress.

I can not dismiss the subject of genital surgery without making a strong plea in favor of conservatism in the treatment of prostatic hypertrophy. A few years ago J. W. White made a series of experiments on dogs which proved that the testicles possessed an influence which, to a certain degree, controlled the nutrition of the prostate gland. His experiments were made on dogs, the animals being vigorous and in full possession of their sexual power. He found that castration was constantly followed by progressive atrophy of the prostate gland. At that time he timidly suggested that castration in cases of prostatic hypertrophy might possibly prove to be a valuable surgical resource in the treatment of urinary obstructions due to such a cause. About the same time Ramm gave the result of his clinical experience, covering about the same ground, urging the utility of castration as a legitimate surgical procedure in the treatment of non-malignant obstructive enlargement of the prostate, a condition so frequently met with in men advanced in years. You are familiar with the subsequent history of this operation. Numerous operations have been performed in different countries which appear to support the claims made for it by both of these investigators. The operation has been modified in substituting for the castration section or resection of the vas deferens, and recently neurectomy of the spermatic nerves; both of these procedures are said to produce the same curative effect as castration. A sufficient clinical material has accumulated to prove that these different procedures frequently result in diminution in the size of the prostate and that the symptoms caused by the obstruction often diminish or disappear.

I can readily understand in what manner emasculation in young animals and young and middle-aged men should be followed by atrophy of the healthy prostate gland. Castration of women during active sexual life will bring about atrophy of the uterus as a constant result. Clinical experience has also shown that the anticipated menopause effected by castration has a decided effect on the myomatous uterus. But who would think of castrating a woman who has reached the menopause for such an indication? It is very difficult to understand how castration or its substitutes performed on men advanced in years, with atrophic dormant testicles should exert such a positive influence upon an organ, the seat of a senile affection. And yet, the fact remains that many reliable men have observed such results, and we can no longer doubt them.

What I fear, and the reason I allude to this subject, is this, that castration of aged men for hypertrophy of the prostate, when this operation becomes common property and is endorsed by surgeons who stand high in the estimation of the profession, will be misap-

plied in the same way, fortunately, probably to a lesser extent than the removal of normal ovaries. Men will be castrated for stone in the bladder, chronic cystitis and malignant disease of the bladder. It is not always easy nor possible to make a positive differential diagnosis between simple hypertrophy of the prostate and some of the conditions which simulate it so closely. In doubtful cases it appears to me it would certainly be advisable to make the diagnosis sure by a supra-pubic cystotomy before resorting to a mutilating operation, rather than remove the testicles and later discover a tubercular bladder or encysted stone or malignant disease of the bladder or prostate. Castration is such an easy operation that every tyro in surgery will be tempted to perform it upon willing subjects suffering from obscure affections of the bladder, complicating hypertrophy of the prostate gland. The Ramm-White operation deserves a fair trial at the hands of competent surgeons, in well selected cases, but I apprehend evil in the future, not so much from the proper use as the abuse of this procedure. In short, it is probable that this new surgical resource, which has not yet passed the trial stage of a legitimate established surgical procedure, will on a smaller scale become a repetition of the unenviable history of castration of the opposite sex. We have every reason to believe that so far the apparently successful cases have found their way into current medical literature, while the cases in which the operation has proved a failure, with few exceptions, have for apparent reasons not been published.

Gentlemen: It has been my purpose to call your attention in the brief time allotted to the delivery of this address to some of the limits of the art of surgery and to a few of the most flagrant prevalent trespasses of its legitimate limits by indiscriminating surgeons. I wish time would permit me to say something of the too frequent recourse to the recently revived operation of symphyseotomy and the unwarranted procedure known as Porro's operation, except in cases in which the uterus is the seat of a life-threatening affection, some of the evil results following the too frequent performance of ventro-fixation of the retroverted uterus, and many other topics in general surgery and gynecology to which no allusion has been made, where the limits of the art of surgery have been ignored, and too often reckless operating has disgraced the fair fame and reputation of our noble professsion. Let us have in the future more of the *nil nocere* in place of the *furor operativus*. I have written and delivered this address with malice toward none, in the interest of the suffering portion of our population, for the true advancement of the science and art of surgery, and as a plea for recognition of the good work done by the great mass and backbone of our profession, the modest, toiling, inadequately remunerated general practitioner.

Benefactions to Boston Charities.—By the death of an heir the public bequests under the will of Mrs. Josiah Vose, of Boston, Mass., became operative and more than $380,000 is released to many of the more prominent educational and charitable institutions in Boston. These bequests are: Massachusetts General Hospital, $30,000; McLean Asylum, $30,000; Institute of Technology, $25,000; Female Orphan Asylum, $15,000; New England Hospital for Women and Children, $25,000; Institution for the Blind, $10,000; Eye and Ear Infirmary, $15,000, and Home for Colored Women, $5,000.

ADDRESS ON THE CHARACTER OF DR. EDWARD JENNER AND THE HISTORY OF HIS DISCOVERY OF THE PROTECTIVE VALUE OF VACCINATION.

Read at the Centennial Anniversary, Atlanta, Ga., May, 1896.

BY N. S. DAVIS, M.D., LL.D.
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According to reliable authorities the subject of this address, Edward Jenner, was a native of Berkeley, in Gloucestershire, England. He was born May 17, 1749. His father was Rev. Stephen Jenner, who was rector of Rockhampton and vicar of Berkeley. He was the representative of an honorable family long established and owning some landed property in that county. His mother belonged to an ancient family in Berkshire. The father died when Jenner was only 6 years old, thereby leaving the care and education of Edward almost wholly to his older brother, Rev. Stephen Jenner, who appears to have assumed and executed all the parental duties relating to the younger brother with the utmost fidelity and tenderness. The early education of Edward was in the schools, chiefly at Wotton-under-Edge and Cirencester. During this time he developed so much fondness for natural history as to attract special attention, yet he was never behind in any other studies required. At the age of 14 it was decided that his further education should have direct reference to his entering the medical profession. Consequently he was apprenticed to Mr. Daniel Ludlow, a surgeon at Sudbury, near Bristol, for the purpose of studying surgery and pharmacy. It was during this apprenticeship that he heard a young woman, a milkmaid of the neighborhood, say to Surgeon Ludlow that she could not have the smallpox because she had previously had a cowpox sore on her hand contracted while milking. The remark was such as to indicate a prevalent belief among some of those engaged in milking, that there sometimes existed on the udders of the cow a sore or pustule the matter from which, if placed in contact with an abrasion on the hand of the milker, produced a peculiar sore, leaving a permanent scar and rendering him or her ever after immune to the contagion of smallpox. No attention was given to the remark by the surgeon, who like all his confrères regarded it either a mere accidental occurrence, or a superstitious vagary of the common people. But it was far otherwise with his young apprentice, Edward Jenner.

Endowed with the highest order of mental acumen, coupled with an equally high order of benevolence, and already trained to philosophical study, the simple remark of the milkmaid at once and indelibly fixed in his mind the question whether it did not point to a possible preventive of that most dreaded scourge of the human race, smallpox. Jenner never abandoned the idea of solving the question until he had completed its solution thirty years later. But with no accurate description of the alleged infectious sore or pustule on the cow's udder, and the fact that it was met with only at irregular intervals, he was limited during his apprenticeship to the gathering of such items of information bearing on the subject as might come within his reach. In the meantime he not only pursued his studies in surgery and pharmacy with diligence, but he seems to have devoted every available hour to further studies in natural history directly in the open field of nature, observing the habits of liv-

ing animals, gathering fossils, and acquiring unusual skill in drawing. At the expiration of his seven years of apprenticeship with Surgeon Ludlow, in 1770, at the age of 21 years he went to London for the further prosecution of his medical studies. He entered as a student at St. George's Hospital and became a private pupil of the celebrated John Hunter, in whose family he resided during the next two years. During this pupilage he early displayed so much skill and accuracy in making preparations of anatomy and natural history, and in dissecting delicate structures, both natural and pathologic, that he rendered much aid to his preceptor. So marked were these attainments that through the recommendation of Mr. Hunter he was employed by Sir Joseph Banks to arrange the valuable specimens, zoölogical and otherwise, gathered by Captain Cook during his first voyage of discovery ending in 1771. He performed the work so satisfactorily that he was offered the position of naturalist to the next expedition the following year. But his attachment to his older brother and to his native town caused him to decline this offer, and at the end of two years' study in London he obtained the necessary license to practice surgery and returned to practice in his native town of Berkeley at the beginning of 1773. While with Mr. Hunter, young Jenner mentioned his question of the possibility of making the cowpox a valuable preventive of the natural smallpox and subsequently corresponded with him on the subject. He was encouraged to make a thorough investigation, which he entered upon earnestly in 1775, or as soon as he had become established in the practice of his profession.

The first five years were consumed in fairly identifying the true cowpox vaccine pustule and separating it from other sores with which it had been confounded. During the same time his investigations led him to believe the true cowpox pustule yielded its active virus only at a certain stage of its advancement, and that it, together with the diseases known as swinepox and the grease in horses, were all derived from the action of smallpox contagion on these animals. So firm was his belief in the truth of this, that during a period of unusual absence of cowpox from the neighborhood, he ventured to vaccinate his oldest son with the matter of swinepox and produced in him all the symptoms of a very mild case of smallpox. After his recovery he was inoculated with genuine smallpox without effect. This gave him so much confidence in the ultimate success of his investigations that in 1780 he communicated confidentially to his intimate friend, Edward Gardner, the progress he had made and his confident belief that its results would be of the greatest benefit to the human race. In 1788 he carried an accurate drawing of the cowpox sore, as seen on the hand of a milkmaid, to Sir E. Home and others in London, who seemed to regard it as a curious and interesting illustration, but gave no evidence of perceiving its practical importance.

Finally, on the 14th of May, 1796, the long sought opportunity came, and he was enabled to take the lymph from a cowpox pustule on the hand of Sarah Nelmes and with it vaccinate the arm of James Phipps, a boy in good health, and aged 8 years. The vaccine disease passed through its successive stages perfectly and Jenner was surprised at the general resemblance of the the vaccine sores to those of smallpox. About twenty days after the boy Phipps had recovered from his vaccination, his arms were inoculated with smallpox matter without effect. The circle of proof was now complete. The vaccine lymph from the cowpox sore produced the characteristic vaccine on the hand of the milkmaid., The lymph from the vaccine sore on her hand produced the characteristic vaccine sore on the healthy boy, and both proved ever after entirely immune to the contagion of smallpox. Still Dr. Jenner patiently continued two years more in extending and verifying his proofs that there might be no reasonable chance of failure in the complete establishment of his great discovery. He then, early in 1798, wrote in a paper frankly all the important steps of his investigations and the full proofs of his discovery and its inestimable value to the human race, intending to submit it as a communication to the Royal Society, to which he had previously made acceptable communications on other subjects. But we are told by Dr. John Baron, the chosen biographer of Dr. Jenner, that the president of that Society, Sir J. Banks, advised him to be very cautious, lest such a paper should lessen the reputation he had already gained. Accordingly Dr. Jenner, with a supply of vaccine lymph, went to London for the purpose of directly demonstrating its effects to prominent members of the profession in that city. After tarrying there two or three months without finding a single individual who would submit to the simple process of vaccination, near the end of June, 1798, his paper was given to the world in an unpretentious pamphlet, dedicated to his friend, Dr. Parry of Bath, and he returned to his home in Berkeley. He however left with Mr. Cline, of St. Thomas' Hospital, a supply of the vaccine lymph, and this eminent surgeon soon found an opportunity to insert some of the same into the hip of a boy complaining of hip-disease. It was done under the plea of creating necessary counter-irritation, and perfect vaccine sores resulted therefrom. After fully recovering from the vaccination the boy was inoculated in three places with active smallpox matter without producing any of the symptoms of that dreaded disease. With this marked demonstration Mr. Cline became an active advocate of Jenner's discovery, and there was no longer difficulty in finding either physicians or patients willing to practically test its value.

Indeed, in less than twelve months after the publication of Dr. Jenner's pamphlet, a manifesto fully endorsing the truthfulness and value of his discovery was published, signed by seventy-three of the most eminent members of the medical profession in London. Within the same period of time the practice of cowpox vaccination was introduced into this country by Dr. Benj. Waterhouse, Professor of Physic at Cambridge, Mass., who vaccinated members of his own family; and the practice spread rapidly throughout the United States. Under the judicious leadership of Dr. de Carro, of Vienna, the practice of vaccination was rapidly introduced into all the countries of central and southern Europe.

In Spain it was warmly welcomed by both physicians and clergy, by whom a knowledge of it was rapidly communicated to all her colonies on this side of the Atlantic. In Russia the cause of Dr. Jenner found an efficient advocate in the Empress, who introduced the practice of vaccination in her own family, and facilitated its extension to Siberia and the countries of Asia.

Within the short period of two years after the original pamphlet of Dr. Jenner, entitled: "Inquiry

into the Cause and Effects of the Variolæ Vaccinæ," London, 1798, it had been translated into nearly every language in Europe. And within six years the practice of vaccination for the prevention of smallpox had been introduced and sanctioned in every civilized and even semi-civilized country on the globe.

Such is a simple narrative of the inception, patient prosecution, and final completion of the great discovery of the true cowpox lymph and its efficacy as a preventive of smallpox by Dr. Edward Jenner. And thus was the result of more than twenty years of thoughtful, skillful, persevering investigations given to the world with the utmost freedom and truthfulness. It was accompanied by no fictitious names, no unexplained processes, and no hint at selfish or pecuniary recompense. On the contrary, he was among the most zealous in extending its benefits to all classes, and especially to the poor. And he apparently looked only for the fulfillment of Lord Bacon's saying: "That it is heaven upon earth, to have a man's mind move in charity, rest in providence, and turn upon the poles of truth." While it is true that Dr. Jenner's discovery was received and adopted both by the medical profession and the masses of the people of all civilized countries with the extraordinary rapidity just described, it was not without the bitter opposition of some persons, and the injurious effects of a few over zealous or injudicious friends.

To correct the errors and misstatements of these and to furnish additional facts of value, Dr. Jenner published a paper entitled: "Further Observations on Variolæ Vaccinæ, London, 1799;" another on "A Continuation of Facts and Observations Relative to the Variolæ Vaccinæ, London, 1800;" and the same year, "A Complete Statement of Facts and Observations Relative to the Cow-Pock;" followed by another "On the Origin of Vaccine Inoculation, London, 1801.' But in no one of these additional publications did he exhibit the ordinary spirit of controversy.

All were characterized by the highest degree of candor and regard for truthfulness, and he continued the practice of his profession in his native town regardless of the most flattering inducements to change his residence to London. In 1788 he had married Miss Catherine Kingscote, a lady admirably qualified to add to his social and domestic happiness. In 1792, wishing to lessen the pressure of his professional practice by changing its direction, he obtained from the University of St. Andrews the degree of Doctor of Physic. However, he not only continued a lucrative practice and actively maintained a social organization of his neighboring practitioners, but he also continued to give so much attention to studies in natural history that he was in 1788, or soon thereafter, elected a member of the Royal Philosophical Society of London. Notwithstanding all these proofs of his love of home, of domestic happiness, of nature in her native garb, and above all, of nature's God, during the few years immediately following the publication of his discovery, he was overwhelmed with correspondence from every quarter, to such an extent that, in his own expressive language, he was forced to become "Vaccine Clerk for the World." In addition to this, congratulatory communications came to him from kings, queens, officers of state and of learned societies, until he soon found himself elected to membership in nearly all the scientific societies in Europe. If we add to all these time-consuming topics, the fact that he continued to devote a certain amount of time each day to the gratuitous vaccination of the poor at his own home, we shall see that his time for pursuing the paying part of his professional practice was seriously impaired. This did not escape the observation of his neighbors and most intimate friends, who near the close of 1801 presented him as a testimonial, a service of plate, which was designed, in reality, as a prelude to the obtaining of his consent to a petition to Parliament for a suitable grant of money. Such a petition was presented on the 17th of March, 1802, and was referred to a committee of which Admiral Berkeley was chairman. After proper investigation, the committee reported favorably and Parliament voted a grant of $50,000. Four years later, 1806, after the Royal College of Physicians had reported favorably on the continued success of vaccination, Parliament voted an additional grant of $100,000. Five or six years later still, subscriptions were taken up in the East, and those forwarded from the three Presidencies of Bengal, Bombay and Madras, aggregated little more than $35,000.

In 1808 Dr. Jenner was elected a Corresponding Member of the National Institute. Subsequently he was elected Mayor of Berkeley, and in 1813 he was granted the degree of Doctor in Physic by the University of Oxford, by special decree of the Convocation. His otherwise most happy domestic life received its first shade of sadness from the death of his oldest son in 1810, leaving him still one son and one daughter. But the deeper sorrow came Sept. 13, 1815, when Mrs. Jenner, after a protracted sickness, died. From this time Dr. Jenner lived in practical retirement, having made his last visit to London the year previous, when he was presented to the allied sovereigns and many other distinguished persons then assembled in that city. Though in practical retirement during the last eight years of his life, he not only found serene enjoyment in the fields and groves of his native town, but sufficient occupation also in still gathering facts concerning the results of vaccination particularly as connected with other cutaneous eruptions, and in discharging the duties of physician, naturalist and magistrate.

He published his last paper in 1822, "On the Influence of Artificial Eruptions in Certain Diseases." His last written expression concerning the general subject of vaccination was found on the back of a letter dated Jan. 14, 1823, and is copied by his biographer, Dr. Baron, as follows: "My opinion of vaccination is precisely as it was when I first promulgated the discovery. It is not in the least strengthened by any event that has happened, for it could gain no strength; and it is not in the least weakened, for if the failures you speak of had not happened the truth of my assertions respecting those coincidences which occasioned them, would not have been made out."

Dr. Jenner is reported to have had a mild attack of apoplexy Aug. 6, 1820, from which he quickly recovered. Another and severe attack came suddenly on the morning of Jan. 25, 1823, from which he died the following morning in the 74th year of his age. His body was buried in the chancel of the parish church of Berkeley, Feb. 3, 1823, in the presence of a large concourse of people.

A good picture of him by Sir Thomas Lawrence is given in connection with a biography in Vol. II of the Medical Portrait Gallery by Thomas Joseph Pettigrew, F. R. S., etc. Soon after his death an excellent statue of him by Sievier was placed in the cathe-

dral at Gloucester,[1] and 1858 a more expensive one was erected in London.

In 1808 Dr. Jenner met and formed an acquaintance with Dr. John Baron, then just entering upon the practice of his profession. This acquaintance soon ripened into a most intimate mutual friendship, which continued to the end of their lives. The trustees of Dr. Jenner's estate placed all his papers, manuscripts and correspondence in the hands of Dr. Baron as the most suitable person for furnishing a full and correct biography of the former. He accepted the task with reluctance on account of the pressure of other engagements, but nevertheless completed it in two volumes, published in 1827, with so much painstaking detail, accuracy and candor as to receive from all the highest degree of commendation. Dr. Baron appears to have appreciated not only the permanent value of every fact connected with the great discovery of Dr. Jenner, but he appreciated also his motives, his attainments and his boundless benevolence, and hence his biography was made so complete, that it has furnished nearly all the facts and materials used by subsequent writers when referring to the subject.

During the last fifty years it has been a very common custom for newspaper, magazine and even medical writers to represent the members of the regular medical profession as so conservative, or wedded to preconceived opinions, that every new discovery was received with reluctance and its author generally persecuted into poverty. But I have searched the pages of medical history from the time medicine began to develop a scientific basis in chemistry and anatomy, in the fifteenth century to the present time, without finding any proof of the correctness of this very popular allegation. On the contrary, every important discovery in chemistry, anatomy, physiology, etiology, pathology or therapeutics that was susceptible of proof by any reliable methods of investigation has been accepted and incorporated into our medical literature in less than ten years after its promulgation, and with due credit to its author.

The spirit of conservatism has at no time been more than sufficient to insure a fair examination of the various bearings of any given proposition; and in recent times often not even sufficient for that. One of the most remarkable items connected with the history of the discovery of cowpox vaccination, was the twenty years of the patient, persevering investigation by Dr. Edward Jenner before he deemed his proofs sufficient to justify him in announcing it to the world. And the next most noted event was the rapidity with which it was accepted and practically applied by the medical profession in all parts of the world. As has been previously stated, the announcement of Dr. Jenner's discovery called forth from a few physicians and others strenuous opposition; and the same class of peculiarly constituted individuals have been perpetuated until the present time. They are found filling the ranks of the mind-curists, Christian scientists, anti-vaccinationists, anti-vivisectionists and anti-common-senseists of the present day. But they embrace in their ranks very few regularly educated members of the medical profession. In speaking of medical discoveries it may not be amiss to say, we mean the announcement of such new facts or truths as are capable of demonstration by legitimate or scientific methods, as distinguished from the announcement of mere metaphysical theories or exclusive dogmas, of which the eighteenth century was peculiarly prolific. The first have always been accepted and incorporated into the proper department of our permanent medical literature, while the latter have with equal uniformity gained popularity for a time, generally in proportion to the mystery in which they were enveloped, and then given place to their successors. This is well illustrated by comparing the present position of the real discovery of Dr. Jenner with the two most pretentious theories of the same century. For it must be remembered that this is not only the centennial anniversary of the discovery of Jennerian vaccination, but it is equally the centennial anniversary of the announcement of the so-called new or phrenological system of mental philosphy by Dr. Gall in his lectures in Vienna, Austria, 1796, and also of the appearance of an "Essay on a New Principle for Ascertaining the Curative Properties of Drugs," by Dr. Christian Friedrich Hahnemann, of Germany, which was the real initiation of the two so-called, universal and immutable laws that "like cures like," and "the greater the attenuation or dilution of the drug the greater its curative power." The new mental philosophy of Dr. Gall, though advocated with the eminent ability of Drs. Spurzheim and Andrew Combe, as destined to revolutionize our ideas of mental philosophy as well as the ordinary principles of education, was so plainly founded on hypothetic or imaginary lines as to admit of no proof either anatomic, physiologic or pathologic and consequently it gained only a partial recognition by medical men, and its advocates were soon induced to make their appeals to the non-professional public. And now at the end of the century its peripatetic lecturers and phrenologic fortune-tellers, can hardly attract anywhere a popular audience sufficient for an evening's amusement. So, too, the purely speculative theories of Hahnemann, being capable of proof by no scientific processes or natural laws, gained so few advocates among the members of the profession, that after the first ten years their author abandoned the ordinary channels of medical literature and appealed directly to the non-professional public and proclaimed them as constituting a new and universal system of medicine. The result is, that the system of Hahnemann now on its first centennial anniversary, has neither legal nor general medical recognition in Europe; and in this country of free fadisms, the number who actually adhere to the practical application of its so-called fundamental laws is not equal to the number of those who may still be found in the ranks of the anti-vaccinationists. And yet its nominal advocates still call it the "new school" of medicine, though born full-fledged an hundred years since; and they attribute its non-acceptance by the general medical profession solely to the stolid conservatism of said profession. Such is the origin of the popular fallacy concerning the reluctance of the medical profession to embrace new discoveries, while, in truth, there is no other class of educated people to be found, whose history proves it more ready to receive and appropriate new facts or real discoveries and to reject mere theoretic dogmas. But my task would be inexcusably defective did I not add to the simple history of the truly great discovery of the protective power of cowpox vaccine virus, some comments on the personal character of the discoverer himself. For, if we may credit the combined testimony of his chosen and most competent biographer, D. John Baron, and his contemporaries,

[1] See London Lancet for 1881, for an account of statue to Jenner.

the character of Dr. Edward Jenner is one of the most interesting and remarkable to be found on the records of medical history. Born in a quiet country town, of parentage of intelligent and high moral or religious qualities, and spending his childhood and youth under the same influences in the midst of his native groves and meadows it was natural that he should develop a passionate love of nature and a marked reverence for nature's great Architect. And receiving his general education, not in the higher colleges or universities, but in the more quiet though excellent local schools near his parental home, still further tended to foster that fondness for the study of natural history and, indeed, all the natural sciences in which he became proficient in after life. No other environment or influences could have been better calculated to develop into unusual prominence the three most remarkable traits in the character of Dr. Jenner, namely, his love of nature and all that is truthful and good, his benevolence or unselfish desire to prevent or relieve human suffering, and his patient and persevering pursuit of whatever promised to result in material benefit to mankind. The last-named element of his character has been amply illustrated by what has already been said of his more than twenty years of earnest pursuit of a reliable preventive of smallpox, regardless of the indifference of his professional brethren generally, and of the positive jeers of some of those most nearly in association with him. His love of nature and genuine reverence for the author of all good is admirably illustrated in a letter to a friend written when the evidences of the genuineness of his discovery were nearing completion. He says: "While the vaccine discovery was progressive, the joy I felt at the prospect before me of being the instrument destined to take away from the world one of its greatest calamities, blended with the fond hope of enjoying independence and domestic peace and happiness, was often so excessive, that in pursuing my favorite subject among the meadows, I have sometimes found myself in a kind of revery. It is pleasant to me to recollect that these reflections always ended in devout acknowledgements to that Being from whom this and all other mercies flow."

But the most vivid illustration of Dr. Edward Jenner's unselfish nature and of his noble conceptions of the true objects of human life is found in his answer to the most tempting inducements to leave his native town and enter upon a professional contest for wealth and fame in the great city of London. We are assured by his biographers that after the full demonstration of the truth of Dr. Jenner's discovery by Mr. Cline, the latter urged him to settle in London, promising him £10,000 ($50,000) per annum as the result of his practice.

To this, however, his deliberate reply was: "Shall I, who even in the morning of my days sought the lowly and sequestered paths of life, the valley and not the mountain; shall I, now my evening is fast approaching, hold myself up as an object for fortune and fame? Admitting it as a certainty that I obtain both, what stock should I add to my little fund of happiness? My fortune, with what flows in from my profession, is sufficient to gratify my wishes; indeed so limited is my ambition, and that of my nearest connections, that were I precluded from future practice I should be enabled to obtain all I want. And as for fame, what is it? A gilded butt, forever pierced with the arrows of malignancy."[2]

Did the combined temptations of offered wealth and fame ever receive a more fitting reply? And has there ever been penned a more stinging rebuke to the manifest commercial, money-making, fame-seeking spirit pervading the ranks of the profession of the present day. To have an intelligent appreciation of the beauties, the harmonies and the beneficence of nature, with genuine reverence for nature's great Architect; to labor diligently for the prevention and relief of human suffering, and the elevation of the race; and at the same time to be content with a competence sufficient to supply all our real wants, is not only a true exemplification of the letter and spirit of our national code of medical ethics, but it is equally an exemplification of the only sure road to human happiness here or hereafter. Such was preëminently the life and character of Dr. Edward Jenner, one of the noblest benefactors of the human race.

For an account of the present status of vaccination in our country, and the chief obstacles in the way of realizing all the benefits its faithful and universal application would confer, I refer you to the members of the various parts of this widely extended country who are expected to take part in the discussion which is to follow.

However, as the shades of sixty years of professional toil and 80 years of life are already upon me, and I may never again have an opportunity to address you even by proxy, I must be allowed to remind you that I deem this to be the true semi-centennial of this great national Association; and to congratulate you on the substantial accomplishment of the leading object which prompted its formation, namely, the placing of our system of medical education on a broader, more systematic and more efficient basis. I am filled with contentment and thankfulness that I have been permitted to live until this day. And I sincerely thank you for so patiently listening to this address.

ORIGINAL ARTICLES.

SCIENTIFIC RESEARCHES RELATING TO THE SPECIFIC INFECTIOUS AGENT OF SMALLPOX AND THE PRODUCTION OF ARTIFICIAL IMMUNITY FROM THIS DISEASE.

Read at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

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Gentlemen:—A complete review of the experimental researches which have been made with a view to demonstrating the exact nature and biologic characters of the specific infectious agent which by its multiplication in the body of a susceptible individual gives rise to the disease known to us as variola, or smallpox, would require a volume. But at the end of this volume I would be obliged to record as the principal conclusion reached, the fact that the specific infectious agent in this disease has not been demonstrated. It does not follow from this statement that the researches made have been without value. If this were so I might dismiss this portion of my subject without further remark. But the present occasion calls for something more than this; for, while we

[2] See Vol. II., Medical Portrait Gallery, Port. Edward Jenner.

are here chiefly to celebrate the centennial of Jenner's great discovery and to consider the beneficent results which have followed its extended application in the civilized countries of the world, we must also give attention to the unsolved problems connected with vaccination, and by a brief review of the literature relating to these problems endeavor to ascertain in which direction our efforts should be turned in future, with a view to their solution.

The principal problem which confronts us is the one already stated. What is the nature of the specific infectious agent? That it is a living microörganism of some kind can scarcely be doubted when we consider the general arguments in favor of a *contagium vivum* in infectious diseases, in connection with our exact knowledge of the etiology of a considerable number of these diseases. But it is proper, in this connection, to call attention to the fact that in the group of infectious diseases to which smallpox belongs —the eruptive fevers—no demonstration has yet been made as to the precise nature of the microörganism which we believe to be present in the infectious material by which these diseases are propagated. The demonstration that certain infectious diseases of man and of the lower animals are due to the presence of bacteria, having specific morphologic and biologic characters by which they can be differentiated one from another, led for a time to the inference that all infectious diseases must be due to the presence of microörganisms of the same class. But the negative results which have attended the extended researches already made give support to the view that the eruptive fevers must be due to microörganisms of a different class, inasmuch as our staining and culture methods fail to demonstrate the presence of specific bacteria in the blood or tissues. Bacteria have, however, been found in the blood and tissues, in a certain proportion of the fatal cases, in the diseases of this group; and these were supposed by some of the earlier investigators to bear an etiologic relation to the diseases in question. But the more precise methods of investigation introduced by Koch have made it evident that these bacteria are not directly concerned in the specific disease processes, and that they are to be regarded as accidentally present, or as representing a secondary infection. The bacteria found under these circumstances are for the most part micrococci, and especially the well known pus cocci—staphylococcus pyogenes albus, staphylococcus pyogenes aureus, and streptococcus pyogenes. The frequency with which these cocci are found in the eruption of variola and of vaccinia, both in the vesicular and in the pustular stages of development led to the description, by Cohn, of his *micrococcus vaccinæ*. The description, as given in my translation of Magnin, published in 1880, is as follows:

"*M. vaccinæ*, Cohn (*Microsphæra vaccinæ*, Cohn.) Very small micrococci, =0.5 μ scarcely, isolated or united in pairs in recent vaccine virus and in the pus of variola pustules. By cultivation, chaplets of from two to eight cells may be obtained, then masses containing sixteen to thirty-two cells of 10 μ and more in diameter." According to Cohn the micrococci of vaccine virus and of variola were to be regarded as different races of the same species. Evidently his conclusions were based upon insufficient data and preconceived notions. But it must be remembered that at the time they were formulated Koch had not yet resorted to the use of solid culture media and the plate method for the differentiation of bacteria; and the essential requirements of a scientific demonstration of the etiologic relation of a microörganism to a specific infectious disease had not been stated by him, or generally recognized by those engaged in bacteriologic researches. Subsequent investigations have shown that various micrococci and bacilli are found in the pustules of smallpox and in vaccine lymph, and that no one of these, when isolated in a pure culture, will cause the development of a typical vaccine vesicle. Researches relating to the bacteria present in vaccine lymph were greatly stimulated by the offer, by the Grocer's Company of London, of a prize of £1,000 for the discovery "of a method by which the vaccine contagium may be cultivated apart from the animal body in some medium or media not otherwise zymotic —the method to be such that the contagium may by means of it be multiplied to an indefinite extent in successive generations, and that the product after any number of such generations shall (so far as can within the time be tested) prove itself of identical potency with standard vaccine lymph." This offer was made in May, 1883, but up to the present time, so far as I am informed, the prize has not been awarded.

Among those who were induced to make researches in competition for the Grocer's Company prize we may mention Dr. John Dougall, Health Officer of Glasgow. His "Competitive Essay" is published in the Glasgow Medical Journal of December, 1886, and January, 1887. He obtained cultures of micrococci from vaccine lymph, in the various media employed in his investigations, and made numerous vaccinations with these cultures. Some of these appeared to be attended with partial success, but his critical review of his own experiments shows that this apparent partial success was due to the fact that "natural and artificial lymphs (cultures) were nearly always used simultaneously, on the same arm, and in close proximity, and it was found that when artificial lymph proved successful (?) the vesicle was nearly always small and imperfect." In his "conclusion" Dr. Dougall says: "The results of this inquiry, based on the foregoing experiments, do not fulfill the terms of success in solving the announced problem. In other words, I have failed to cultivate vaccine lymph in artificial soils." Dr. Dougall, not being an experienced bacteriologist, apparently assumed that the micrococci obtained by him from vaccine lymph were all of one species; at least he gives no account of an attempt to differentiate species by the plate method. This differentiation has been made, however, by other bacteriologists. Thus Copeman (1891) says:

"As it was evident that more than one organism could usually be obained by the inoculation of lymph into nutrient media, plate cultivations were made with the object of separating out the different varieties present, both gelatin and glycerin-agar being used for this purpose. In this manner I succeeded in obtaining pure growths of various microörganisms, of which those which almost invariably occurred included micrococci apparently much resembling, if not identical with, the following: 1, M. pyogenes aureus; 2, M. cereus flavus; 3, M. epidermis (? Staphylococcus albus, Klein).

"In these observations I find my experiments are in agreement with those of Pfeiffer, while doubtless these various micrococci correspond respectively with Buist's so-called orange, yellow, and white vaccine. In addition, I occasionally found another organism,

which from its morphologic and microscopic characteristics, I believe to be streptococcus pyogenes. In order to test what action, if any, these various microphytes were capable of exerting, they were inoculated, both in pure culture and mixed in various proportions, not only on the calf, but on the human being and on the rabbit, since this latter animal is apparently susceptible to vaccination performed in the ordinary manner. Such inoculations, for the most part, produced little or no effect, although inoculations of streptococcus pyogenes alone occasionally caused the appearance of a small circumscribed inflammatory patch around the point at which it was inserted. In one instance, also, a rabbit died, apparently of septicemia, after inoculation of a mixed growth of the various organisms previously mentioned together with a certain amount of broth in which they had been grown. In the whole series of inoculations, nothing resembling a vaccine vesicle was seen, so that it was, apparently, pretty certain that none of the organisms that had been isolated in the manner described could be directly concerned in the causation of vaccinia."

Pfeiffer, in addition to staphylococcus pyogenes albus, which was most constantly present, obtained the following species: Staphylococcus pyogenes aureus, occasionally; staphylococcus cereus albus, very frequently; four species of sarcinæ (S. lutea, S. tetragonus, S. aurantiaca and S. muscopus), occasionally; proteus vulgaris and certain non-liquefying bacteria, occasionally. He also found occasionally in human lymph, and always in calf lymph, a species of saccharomyces.

Crookshank (1891) obtained from calf lymph the following bacteria: Specimen No. 1 yielded a torula, bacillus pyocyaneus and bacillus subtilis; No. 2, a bacterium, a variety of proteus, staphylococcus pyogenes aureus, yellow bacterium; No. 3, a bacterium, micrococcus, yellow bacterium and torula; No. 4, yellow micrococcus, white micrococcus, white torula, yellow sarcina, white diplococcus, staphylococcus cereus albus, and a mold fungus; No 5, yellow sarcina, staphylococcus pyogenes aureus, yellow micrococcus, white bacillus, staphylococcus pyogenes albus, large white micrococcus, yellow bacterium, and a white micrococcus. Among the specimens of human vaccine lymph, No. 1, contained a white micrococcus, proteus and staphylococcus pyogenes aureus; No. 2, a micrococcus, a tetracoccus, a white liquefying micrococcus, and a yellow bacterium; No. 3, white micrococcus, yellow micrococcus, staphylococcus aureus and flavus, a bacterium, a white micrococcus, a bacillus resembling bacillus subtilis, staphylococcus pyogenes aureus, and a brown tetracoccus. Crookshank concludes that none of these bacteria are peculiar to vaccine lymph; "there was no bacterium constantly present in human and calf vaccine, and there was not one which could be regarded as the contagium. To sum up, most of them were well known saprophytic bacteria, and some were identical with bacteria commonly found in suppuration."

The experiments of Carstens and Coert (1878) show that the specific virulence of vaccine lymph is destroyed by ten minutes' exposure to temperature of 54 degrees C. And the writer's experiments (1879) show that various disinfecting agents tested—chlorin, sulphur dioxid, nitrous acid—destroy the infective virulence of lymph dried upon ivory points in about the same proportion as is required for the destruction of some of the best-known pathogenic bacteria. But this does not prove that virulence depends upon the presence of a living microörganism, however probable this appears, for certain toxalbumins are likewise destroyed by a correspondingly low temperature and by the action of various chemic disinfectants.

Nikolsky (1892) obtained from the base of the pustules of smallpox a motile, liquefying, spore-producing bacillus which when introduced into the peritoneal cavity of rabbits is said to have given rise to a pustular eruption; the bacillus was recovered in cultures from these pustules. Grigorijew (1889) in three cases found a small bacillus, twice as long as thick, which slowly liquefied gelatin, and did not coagulate milk. Besser (1893) gives an account of the microorganisms found in the pustules of variola and adds to the list a bacillus found by himself in a single case. This does not grow in gelatin at the room temperature and is more slender than the bacillus of Grigorijew.

The results of the researches of Martin (1891) have been reported by Ernst (1893). He obtained various bacteria from the lymph of vaccine vesicles, and among these was a bacillus which he believed to be the specific infectious agent. This he was able to cultivate upon the surface of sterilized blood-serum of the ox, at 37 degrees C., and his cultures of the ninth generation are said to have produced typical cowpox when inoculated upon calves. He says: "The material 'takes' with the same certainty as the lymph from the vesicle. From the vesicles produced by it upon the calf I have vaccinated a number of children, in every case inducing vaccinia of the most perfect type." He also says with reference to his cultures: "These cultures, however, were not pure, but contained quite a variety of bacteria. In every instance the blood-serum was liquefied." As to the morphology he says: "The bacterium varies in form according to the various conditions of its nutritive environment and the consequent rate of its development. The most constant and prevalent form is a short, fine bacillus with rounded or nearly square ends. Those parts of the culture where the nutriment is apparently exhausted show the same bacilli in short chains, longer bacilli, and bacilli much enlarged at one end or the middle, as if in preparation for spore formation." As Martin's cultures were not pure we have no evidence that his successful inoculations were due to the particular bacillus which attracted his attention. Possibly a microörganism of another class was also present and was carried over from one culture to another. Ruete and Enoch (1893) have also reported successful vaccinations in the calf with a micrococcus which they cultivated from vaccine lymph.

Buttersack (1893) as a result of his researches arrived at the conclusion that there are numerous minute elements in vaccine lymph which do not stain and are sometimes arranged in chains. The subsequent researches of Landmann (1894) and others indicate that the supposed microörganisms of Buttersack are non-living albuminoid granules, artificially produced by his method of investigation. This view is confirmed by the investigations of Dräer (1894).

Guarnieri (1892), Monti (1894), Piana and Galli-Valerio (1894), and Clarke (1895), have observed ameboid microörganisms in the pustules of variola and in vaccine lymph which may prove to be the specific infectious agent in this disease. These are

described by Guarnieri under the name cytorycetes variolæ and cytorycetes vacciniæ. According to Clarke these ameboid parasites belong to the sporozoa. E. Pfeiffer (1895) has studied this parasite by inoculations into the cornea of rabbits, guinea pigs and calves.

Wassermann has recently (1895) reported his failure to obtain microörganisms in cultures from the variola pustules. He says: "At the suggestion of my highly honored chief I have made a bacteriologic examination of the variola pustules in cases 1, 2 and 4. Herr Geheimrath Koch had the kindness to inform me that he himself formerly in numerous cases, in which he made a similar investigation, had constantly found the contents of the pustules sterile. This I am able to verify from my own investigations. Naturally it is necessary to work with aseptic precautions. For this purpose the surface of the pustules was cleaned with alcohol and ether, and the contents then withdrawn with a capillary pipette. In this manner I obtained material from the pustules in all stages of their development, not only serum but also pure pus. This was cultivated upon human blood-agar, serum-agar, serum, and dextrin-serum-agar, both under aërobic and anaërobic conditions, *but all of these culture media remained sterile*, no microörganisms grew."

In certain cases of hemorrhagic smallpox Koch found constantly in the contents of the pustules a streptococcus—probably S. pyogenes—which no doubt represented a mixed infection.

That none of the bacteria which have been cultivated from vaccine lymph have anything to do with its specific virulence is indicated, not only by the fact that the inoculation of pure cultures of these various microörganisms gives a negative result, but also by the fact that vaccine lymph when mixed with glycerin after a time becomes sterile, so far as these microörganisms are concerned, without losing its power to produce a typical result when tested upon a susceptible individual. Copeman, has shown that such admixture, after a time, destroys the vitality of the micrococci and other bacteria present in the lymph, and that virus preserved in this way until it is sterile, as proved by culture experiments, is even more active than when first obtained. Copeman's conclusions have been confirmed by the independent observations of Cambon and Ménard, of Prof. Straus and others. And this method of preserving lymph is coming into general use. It has the manifest advantage of excluding the pus cocci and thus preventing the unpleasant complications which result from inoculating these pathogenic micrococci at the same time with the vaccine lymph. No doubt the excessive tumefaction, erysipelatous inflammation and ulceration which often result from vaccination are chiefly due to inoculation with these micrococci and especially with staphylococcus pyogenes aureus and streptococcus pyogenes. According to Prof. Straus glycerinated lymph which when fresh gave numerous colonies of various bacteria, including especially staphylococcus pyogenes albus and aureus, at the end of fifty to sixty days was found to be absolutely sterile. This method of excluding extraneous microorganisms should be employed by future investigators, who will thus have the advantage of conducting their experiments with a, presumably, pure culture of the vaccine microbe.

It seems to me, also, worth while to make some experiments to determine whether successful vaccination can not be made, with such lymph, by a method which would insure the exclusion of bacteria from the locality into which the vaccine virus is introduced, thus giving an aseptic result. This would be readily accomplished if subcutaneous injection of the glycerined virus could be substituted for the usual method of superficial scarification. That this may be possible is suggested by the experiments of Chauveau. In a paper published in 1877, eleven years after the publication of the report of the famous commission of which he was president, he says:

"When, in place of inserting the vaccine virus into the rete mucosum of the skin, we cause it to penetrate by way of the subcutaneous connective tissue, the virus manifests its action by two kinds of positive effects common to the three species" (man, horse and cow) "a more or less pronounced local tumefaction is developed, and the subjects acquire the vaccinal immunity exactly as if they had been vaccinated in the classic way."

The experiments of Raynaud (1877) led him to a similar conclusion. He says: "As regards the vaccinal pustule: The evolution of this pustule" (bouton) "is not necessary in order that immunity may be induced. This is produced after a subcutaneous inoculation, even when the development of the vaccine pustule is prevented."

Having briefly reviewed the evidence relating to the presence of microörganisms in the virulent material by which variola and vaccinia are transmitted from one individual to another I must now invite your attention to the second subject included in the title of my paper, viz.: *Scientific researches relating to the production of artificial immunity from this disease.*

In Jenner's "Inquiry," published in 1798, he gives an account of the observations and experiments which led him to the conclusion that cowpox results from the transfer of infectious material from "the heels of a horse affected with the grease"; and that when transmitted to the human subject, by contact in milking with the pustules upon the "nipples of the cows," "the person who has been thus affected is forever secure from the infection of the smallpox; neither exposure to the variolous effluvia, nor the insertion of the matter into the skin, producing this distemper." We now know that Jenner was mistaken in his inference that vaccination protects from smallpox during the lifetime—"forever after"—of the individual. It is generally recognized by physicians that the protection afforded is not absolute and that it is not permanent. Hence the necessity for revaccination, after an interval of several years, when smallpox is prevalent in a community. The fact that a single attack of smallpox is not always protective would lead us to expect that the immunity from vaccination would not be absolute, and experience shows that in every smallpox epidemic a certain number of persons who have been vaccinated fall victims to the disease; but experience also shows that the mortality among the vaccinated is very much less than among the non-vaccinated. The London Board of Health, from thirty returns sent to them—not selected—has given the following table:

	Number of Cases.	Deaths.	Percentage of Deaths.
Natural smallpox in the unprotected . .	1,731	361	20.85
Smallpox after smallpox	58	22	37.92
Smallpox after vaccination	929	33	3.44

The gradual loss of immunity from vaccination, as determined by revaccination, is shown in the following figures, which are given in a recent (1894) paper by Biedert. In the year 1889 smallpox was introduced into Hagenau, and twenty-one cases occurred. The physician charged with that duty revaccinated all of the school children with the result given below:

Age.	Number Vaccinated.	Successful.	Per cent.
6 to 7	288	94	33.0
7 to 8	292	187	63.8
8 to 9	222	161	72.5
9 to 10	221	176	80.0
10 to 11	306	273	85.8
11 to 12	413	367	88.6

We may remark in connection with this table that in Germany vaccination is compulsory, and all children must be vaçinated before the September of the year following their birth. All scholars who have not had an attack of smallpox must be revaccinated when 12 years old.

Questions relating to the practical application and results of Jenner's method of prophylaxis do not come within the scope of the present paper. But we must give some attention to a question of great scientific interest, which has been repeatedly investigated by the experimental method and upon which, nevertheless, divergent views are still held by members of the profession who have made a critical study of this evidence. The question is whether cowpox and horsepox are modified smallpox, as maintained by those who accept the evidence of successful inoculations, afforded by the experiments of Gassner, Ceely, Badcock and others, or whether these diseases are quite distinct and independent of each other as maintained by Chauveau, Fleming, Crookshank and others, who give reasons for believing that this evidence is unsatisfactory. The arguments in support of this last-mentioned point of view are so concisely stated by Fleming[1] that I shall take the liberty of quoting a considerable portion of his letter to the editor of the *Lancet* (Nov. 20, 1886). He says:

"For many years now, the medical profession in this country seems to be generally agreed that human variola and cowpox are one and the same malady, the latter being merely smallpox modified through transference to the bovine creature. In books, letters and lectures there is evidence of this belief, and the latest proof of its existence is to be found in the Harveian Oration recently delivered by Dr. Pavy, in which we find the following statement: 'It may now be regarded as an accepted conclusion that vaccine lymph is the virus of smallpox, modified by transmission through the cow.' If it be not rank heresy to throw doubts on a conclusion accepted by such high authorities in human medicine as Dr. Pavy represents, will you kindly allow me, a very humble student of animal medicine and comparative pathology, to dissent from this generally accepted conclusion, and to express strong doubts, or even entire disbelief, as to the one malady being merely a modification of the other. The question would not, perhaps, be of so much moment had not at least three serious accidents resulted from carrying the above conclusion into practice; and as more disasters may yet be due to the same notion, I submit that it is high time the supposed facts upon which it is based should be examined in order that the truth may be arrived at. The most notable authority for the statement made by Dr. Pavy, in this country at least, was my old friend, the late Mr. Ceely, of Aylesbury, who reported that he had succeeded in producing cowpox by inoculating a cow with smallpox matter. But it must be remembered that he, at the same time, was experimenting with vaccine lymph, and the great probability is that he employed the latter when he thought he was using the former. At any rate, he never afterward succeeded in repeating his presumed success, though his subsequent trials were made under the most favorable conditions. The last attempt was undertaken not long ago, and only a short time before his death. On that occasion twelve heifers were purchased by the local government board and lodged in the Brown Institution, where they were inoculated by Dr. Klein, under the supervision and direction of Mr. Ceely; and though smallpox matter was literally poured into the incisions and the greatest care was observed throughout, yet cowpox was not developed in any of the animals. Similar failures have attended all other attempts, when these have been made openly and by two or more individuals. I may allude to those of the French commission, which included some of the most distinguished members of the medical profession in Paris, with the able veterinary surgeon, Chauveau, as operator; and the Italian commission, whose labors were carried on at Turin on a large scale and for a long time. All in vain, however, for smallpox could not be converted into cowpox, and the conclusion arrived at was in direct opposition to that which Dr. Pavy asks us to accept.

"Dr. Pavy speaks of the smallpox virus becoming attenuated in the cow, and that this attenuation manifests itself as cowpox. But if inoculation of the former produces the later, then I contend it is not attenuation, but absolute and permanent transformation of the most startling and complete description, and such as can not be effected with any virus or microbes known. We are required to believe that by one remove of human smallpox—most infectious, fatal and generally eruptive disease—to the cow, we have produced a non-fatal disease, which can only be transmitted by inoculation, with an eruption quite localized at the points of inoculation, and otherwise widely different in its clinical and pathologic features, especially with regard to the eruption. Most astonishing of all, however, is the circumstance that this modified or attenuated smallpox, when carried back to its original soil in mankind, never resumes its original characteristics; no matter though it be carried through countless generations of human beings, it remains forever in its transformed condition. This does not happen with an attenuated virus, nor can any virus, by any artifice of man, become so utterly changed. Again, we all know how readily vaccine lymph, when inoculated in the calf or cow, will produce vaccinia. As I have pointed out, all attempts to develop the latter by inoculating these animals with variolous matter have resulted in failure, when made by those most competent to achieve success, if this were possible."

In support of the opposite and generally accepted point of view, I may be permitted to quote from an abstract of a paper by Copeman,[1] read before the Epidemiological Society of London, April 9, 1893:

"Whatever doubts might attach to some, especially

[1] Geo. Fleming, LL.D., Principal Veterinary Surgeon of the Army.

[1] S. A. Moncton Copeman, M.A., M.D., Medical Inspector, Her Majesty's Local Government Board, etc.

of the earlier attempts, and to those in which there was a suspicion of concurrent retro-vaccination, he was firmly convinced that Badcock, Ceely, Thiele and others in the past, as well as Voight, King, and above all Haccius, within the last ten years had repeatedly succeeded in transforming the lymph of typical variola into the best vaccine by successive transmissions through the bovine organism. In the earlier terms of such series it retained much of the virulence or activity of variola, but was even then essentially changed in being no longer communicable otherwise than by actual inoculation.

"In the cases on which the Lyons school relied in their denial of such transformation of variola into vaccinia the lymph or pus had not been absorbed and consequently was in no way modified, but the very same matter that had been inserted in the calf being afterward inoculated into the child naturally reproduced unmitigated smallpox.

"Haccius' experiments were, however, absolutely conclusive and unimpeachable, proving that vaccinia was but a modification of variola consequent on its cultivation in the cow."

The results obtained by Haccius and Eternod, which Copeman accepts as conclusive, are stated by the authors referred to as follows:

"In the first place, we affirm, that after having inoculated calves with variola virus, from seven different sources, and obtained from cases more or less grave, we have obtained every time, after the second or third generation"—*i. e.*, the second or third successive inoculation—"pustules which differed in no way, in their appearance, from the vaccinal pustules originating from cowpox.

"Our experiments show that the result of inoculations varies according to the method employed for introducing the virus. Scarifications and denudations alone have given useful eruptions, while incisions and subcutaneous punctures, such as are usually practiced, have given no result, or have only given rise to small red nodules, not suitable for propagation.

"It results from these facts that the inoculation of human variola in bovine animals causes two kinds of eruption, one which may be propagated and the other which can not.

"The eruption which can be cultivated does not give at the outset a vaccinal pustule having all of the typical characters. It requires, in general, to be transmitted through several successive generations in order to acquire them."

With reference to the successful results obtained by Badcock and by Ceely, we quote from a paper in the *British Medical Journal* (Nov. 26, 1881) by Dr. Hodgson, as follows:

"Although often failing afterward, it was Mr. Badcock's good fortune to have a first success. Obtaining from the late Sir (then Mr.) Cordy Burrows some lymph from a primary case of human smallpox, he inoculated a cow with it, and produced (in the judgment of Dr. Willis and Mr. Burrows) such perfect vaccine vesicles, that he has induced therefrom to vaccinate his own baby, and with the result again satisfying the medical men that genuine vaccine pocks occurred on the little boy's arm. From these, in turn, a supply of lymph was obtained, and was propagated on other children, uniformly with the same results; many other medical men taking part in the proceedings, or using the new lymph in their practices.

"Mr. Badcock's enthusiasm carried him forward, and led him, notwithstanding many failures and disappointments, to incur considerable expense in keeping up a stock of cows on which to continue his experiments. For twenty successive years did he persist from time to time, as opportunity offered, procuring through medical men fresh supplies of variolous matter, and using it on the cows. Altogether, he practiced on two hundred cows.

"Several of the two hundred animals he inoculated repeatedly. In only thirty-seven instances were satisfactory vaccine pocks considered to result; indeed, in four of these, they were not so finely developed as to encourage a transference from them of their contents. Consequently, the total number of cases in which typical vaccine pocks were produced, and which were considered eligible for vaccinating from (during the twenty years' experiments), was thirty-three. These successful cases were watched, in different stages, by various medical men, many of whom were public or practical vaccinators highly qualified to decide on their merits; and the lymph so obtained has been circulated throughout the civilized world. It continues to be held in high esteem in Brighton, where the three public vaccinators have each of them received gifts from the government three several times for the high standard of their vaccinations.

"The late Mr. Marson used Mr. Badcock's lymph for many years, and so did the late Mr. Ceely. The latter and Mr. Badcock commenced their experiments in the same year, unknown to each other; and Mr. Ceely, having succeeded twice only himself, afterward visited Brighton, and, having satisfied himself of the thorough reliableness of Mr. Badcock's doings, then ceased personally to experiment further—the more readily so, in consequence of the arduousness of his other occupations as a country hospital surgeon and general practitioner.

"Sir Thomas Watson and Dr. Bristowe, in their text-books on the practice of medicine, have both accepted Ceely's and Badcock's investigations, as furnishing the true bearing of cowpox to smallpox; and, as long ago as 1857, in the ponderous 'Blue-book' on vaccination, compiled under the superintendence of Mr. Simon, he thoroughly does the same. These are extracts from his report. 'Researches, subsequent to Jenner's, have settled this part of the question. It has been made matter of familiar experiment that the infection of smallpox may be communicated, by inoculation, from man to the cow, producing vesicles which present the physical characters of cowpox; and that the lymph from these vesicles, if implanted in the skin of the human subject, produces the ordinary local phenomena of vaccination, from which lymph may be transferred to other unprotected persons, all of which human beings will diffuse no atmospheric infection, and will afterward themselves cease to be susceptible to smallpox. The people thus protected are so, because the process has really given them smallpox of the most mitigated kind. The merit of this discovery belongs in the first place, to Gassner, in 1801; and, of corroborating it, in 1840, to Ceely and Badcock. The last mentioned has, during the last seventeen years, again and again derived a fresh stock of vaccine lymph from cows thus artificially infected by himself; has vaccinated with such lymph more than fourteen thousand persons, and furnished supplies of it to more than four hundred medical practitioners.'"

The time at my disposal will not permit a more extended review of the experimental evidence; but in view of the positive results already referred to I believe we are justified in accepting it as a demonstrated fact that cowpox and smallpox have a genetic relation and that cowpox may be induced by inoculations with smallpox virus. The negative results which have so frequently attended such inoculations can not be accepted as establishing the contrary view. While this question could only be settled definitely by experimental evidence, we may call attention, as corroborative of the conclusion reached from an examination of this evidence, to the support which it receives from the demonstrated fact that both in man and in susceptible lower animals inoculations with the virus from either source confer immunity from the pathogenic action of the other. This cross immunity, so far as we now know, does not occur in infectious diseases which are not genetically related. Another significant fact is the frequency of cowpox in England at a time when smallpox was prevalent in that country, and its comparative infrequency since, as a result of vaccination, the prevalence of the disease has been greatly restricted.

The genetic relation of smallpox and horsepox is established, indirectly, by the experiments of Jenner and others, which show that inoculations of the virus of horsepox, or "grease," will cause the development of typical pustules of cowpox in bovine animals, and that from these a vaccine virus may be obtained which gives rise to typical results in man. Chauveau says that the horse "has a special aptitude to the natural or spontaneous development of the vaccine disease." Its special susceptibility is shown by the fact that a generalized vaccinal eruption, corresponding with that of natural horsepox, not infrequently results from cutaneous inoculations and also from intra-venous injections of vaccine virus. Such injections, according to Chauveau, "not only confer immunity, but quite frequently give rise to an exanthematous vaccinal eruption, the exact *fac simile* of the natural malady."

The experiments of Copeman, Reed and others, show that the monkey is also susceptible to vaccination and that after a successful vaccination it has acquired an immunity from the specific pathogenic action of the vaccine virus.

Reference has already been made to the experiments of Chauveau and of Raynaud, which show that vaccinal immunity may be produced by the subcutaneous injection of vaccine virus. Raynaud has also called attention to the fact that after such inoculations, as well as after vaccination by the usual method, the nearest lymphatic gland is considerably enlarged. The idea occurred to him that the specific infectious element might be retained in these enlarged glands, but he failed in obtaining any positive results from vaccinations with the juice of such enlarged glands. He also had negative results in subcutaneous inoculation made with lymph obtained from the lymphatic vessels between the point of vaccination and the nearest glands. But several grams of such lymph injected directly into the circulation of a horse caused an eruption of horsepox. In his summary of the results of his experiments Raynaud says: "It is then possible, finally, to detect traces of virulence in the lymphatic system, between the place of inoculation and the nearest lymphatic gland. Beyond this gland it is not found. This circumstance seems to indicate that the glands may be concerned in the disappearance of virulence and the appearance of immunity, two facts simultaneous and correlative."

That immunity may be induced in the calf by intravenous injections of small quantities of vaccine virus appears to be demonstrated by the experiments of Straus, Chambon and Ménard (1890). Chauveau had previously shown that the horse may be made immune by such injections.

Both Chauveau and Raynaud obtained negative results from their experiments with the blood of vaccinated animals. In a single experiment made in 1877 Raynaud obtained what appeared to be a positive result in a calf into the veins of which he had injected 250 grams of blood from another calf which had been vaccinated six days previously and in which the vaccinal eruption was fully developed. This animal proved to be fully immune, but subsequent experiments did not give a similar result and Raynaud abandoned the view, which he at first entertained, that immunity in this case was due to the transfusion of blood from a vaccinated calf. More recent experiments, however, seem to show that by the transfusion of a very large amount of blood from a vaccinated calf immunity may be induced. The experiments of Straus, Chambon and Ménard gave a successful result when the amount of blood transfused was as much as five or six kilograms.

Béclère, Chambon, and Ménard (1896) report that in their experiments the vaccinal eruption was considerably modified, in the calf, by subcutaneous injections of serum from an immune animal when the total amount injected was from 800 to 1,500 c.c.; also that lymph from the modified vaccinal eruption was attenuated, as regards its specific virulence. That complete immunity is not produced by the subcutaneous or intravenous injection of amounts varying from 50 to 1,000 c.c. is demonstrated by the experiments of Chauveau, of Raynaud, of Kramer and Boyce, of Beumer and Peiper and of the authors above mentioned.

The successful experiments of Prof. Straus and his associates lead them to conclude that the undiscovered "vaccine microbe" is present in the blood, in very small quantity during the period of eruption—at which time the blood was obtained which served for their experiments. A different explanation of the immunity resulting from the transfusion of so large a quantity of blood suggests itself as more probable, in view of recent additions to our knowledge relating to the production of immunity by antitoxins. If the immunity induced in the experiments referred to was due to the introduction of the vaccine microbe the result would not be likely to depend so largely upon quantity. A microbe capable of self-multiplication, if present in the blood transfused could scarcely fail to be in sufficient numbers to cause general infection when from 250 to 1,000 c.c. of this blood is injected into the veins of a susceptible animal. But in the experiments referred to immunity was not established unless a considerably larger quantity of blood was transfused. The experiments of Béclère, Chambon and Ménard (1896) show that blood collected from a vaccinated heifer some time after the complete dessication of the vaccinal eruption possesses immunizing properties. These results are confirmed by results obtained by Major Walter Reed, Surgeon U. S. A., in experiments on monkeys, made at the Army Medical Museum. Dr. Reed's experiments also show that a considerable

quantity of serum is required in order to establish a complete immunity from the specific pathogenic action of vaccine virus. When the quantity was insufficient a partial effect was noted, the vaccine vesicle appearing at a later date after vaccination, and in some cases showing an imperfect development.

Béclère, Chambon and Ménard have given the following summary of the conclusions reached by them, as a result of their experiments:

"1. The serum of a vaccinated heifer collected ten to fifteen days after vaccination, after the virulent period, possesses immunizing properties.

"2. The immunizing action of the serum of the vaccinated heifer is very rapid. The subcutaneous injection of a sufficient quantity, made immediately before vaccination by numerous sub-epidermic inoculations, modifies the subsequent development of the vaccinal eruption and may cause its almost complete abortion."[1]

. . . . .

"4. The rapidity of the immunizing action of the serum of the vaccinated heifer, compared with the tardy immunity which follows the subcutaneous inoculation of vaccine lymph, demonstrates that the serum owes its immunizing properties to soluble substances and not to the presence of the microbes (still unknown) of vaccinia."

The experimental evidence heretofore referred to seems to support the conclusion last stated and experiments made by the present writer in 1892 show that the soluble substances upon which immunity depends when brought into contact with vaccine virus neutralize its specific virulence—presumably by destroying the vitality of the vaccine microbe. The positive results reported in my paper published (1892) in the Transactions of the Association of American Physicians[2] have since been confirmed by Kinyon and by Reed.

The experimental evidence recorded appears to me to indicate that the immunity resulting from vaccination, or from an attack of smallpox, is due to the presence in the blood of the immune animal of a substance which destroys the variola microbe, rather than to an antitoxin capable of neutralizing the toxic substances developed during the growth of this hypothetical microbe. As already stated, my own experiments show that direct contact with blood-serum from an immune animal neutralizes the specific virulence of vaccine virus, and I infer that it does so by destroying the vitality of the contagium vivum present in such virus. The antitoxins, as a rule, have no germicidal action; but we have experimental evidence which shows that immunity from the pathogenic action of certain microörganisms may depend upon the presence of a germicidal substance in the blood of the immune animal. Thus Gamaleïa, Pfeiffer and others have shown that in animals which have an acquired immunity against infection by the spirillum of Asiatic cholera and against spirillum Metchnikovi there is a decided increase in the bactericidal power of the blood-serum.

If, as we suppose, the immunity resulting from vaccination is due to the presence of a germicidal substance in the blood the source of this substance is a question of great scientific interest, and its solution might lead to important practical results in the treatment of smallpox. Possibly this substance is elaborated by the lymphatic glands and may be obtained from the enlarged glands of a recently vaccinated calf in greater concentration than from the blood-serum of the same animal. This can only be determined by a series of carefully conducted experiments.

Already a limited number of clinical experiments have been made with blood-serum from an immune animal; but the results have not been very encouraging. The ascertained fact that very large amounts

[1] The writer in 1893 made a series of experiments "upon unvaccinated children in two orphan asylums in Brooklyn, with a view to ascertain whether blood serum from an immune calf, or from an individual who had recently suffered an attack of smallpox, if injected into the subcutaneous tissues at the time of vaccination, would prevent the development of a characteristic vaccine vesicle. In these experiments from 1 to 5 c.c. of the serum supposed to contain an antitoxin of smallpox was injected near the point of vaccination, or, in some instances, into the other arm. The result was negative, even when serum was used from an individual who was just convalescent from a severe attack of smallpox. But it may be that a different result would have been obtained if a larger quantity of blood serum had been used, or if it had been injected into the circulation instead of into the subcutaneous tissues. More recent experiments by Kramer and Boycott (1893) and by Landmann (1894) also show that small amounts of serum from immune calves (5 to 10 c.c.) do not prevent the development of the vaccine vesicle; and that blood serum (35 c.c.) from one who had suffered a recent attack of smallpox did not have any noticeable effect upon the development of a confluent case of smallpox in a child 5 years of age (Landmann)."

(Quotation from the writer's work on Immunity, Protective Inoculations in Infectious Diseases and Serum-Therapy. Wm. Wood & Co., New York, 1895.)

[2] The following extract from my paper entitled "Practical Results of Bacteriological Researches," gives details of the experiments referred to:

"These experiments were made with the kind assistance of Dr. Wm. E. Griffiths, of Brooklyn, who has for many years been engaged in the production of vaccine virus, and consequently is an expert in the vaccination of calves and in recognizing vaccinia in these animals.

"Upon visiting Dr. Griffiths and making known to him my desires, I found him quite willing to assist me, and also that he had recently vaccinated, and consequently immune, calf in his stable. This animal had been vaccinated in numerous places upon the abdomen and thighs fourteen days previously. The vaccination was entirely successful, and a large number of quills had been charged from the vesicles which formed. At the time of my visit for the purpose of collecting blood-serum from this animal, dry crust still remained attached at the points where vaccination had been practiced two weeks previously. On the 28th of April I collected blood serum from a superficial vein in the hind leg of this calf. This blood was placed in an ice chest for twenty-four hours, at the end of which time the clear serum was drawn off in 'Sternberg's bulbs.' Four drops of this serum were placed in each of two small, sterilized, glass tubes; in one of these we placed three quills charged with fresh vaccine lymph from a calf. At the end of an hour the quills were removed, after carefully washing off in the serum the lymph with which they had been charged. In the other tube we mixed with the four drops of blood-serum an emulsion made from a fragment of a perfectly fresh vaccine crust from the arm of a child: this was crushed upon a piece of glass and rubbed up with a little of the same blood-serum. The two tubes were now placed in an ice-chest for twenty-four hours, at the end of which time the contents were used to vaccinate a calf purchased for the purpose. Dr. Griffiths carefully shaved the thighs of this calf and scarified each thigh in several places, as he is accustomed to do in vaccinating for the propagation of lymph. The contents of the tube containing lymph from the quills were rubbed into the scarified places upon one thigh, and the contents of the tube containing the emulsified crust into the other. On the 8th of May, nine days after the vaccination, the calf was carefully examined, and it was ascertained that the result of the vaccination was entirely negative.

"Evidently it was necessary to make a control experiment before we would be justified in ascribing this negative result to a neutralization of the virus by some special substance present in the blood serum of an immune calf. Possibly the blood of a non-immune calf might also, after an exposure of twenty-four hours, neutralize the specific virulence of vaccine lymph. The control experiment was made as follows:

"On the 9th day of May we collected blood from a vein in the leg of a non-immune (not vaccinated) calf; this was placed in the ice-chest for twenty-four hours, and the following day clear serum was collected in Sternberg's bulbs. Three quills, charged with fresh lymph from a calf, of the same lot as those used in the previous experiment, were placed in four drops of this blood-serum in each of two small glass tubes. As in the previous experiment, the lymph was washed from the quills at the end of an hour, and the tubes were placed aside in the ice-chest. At the end of twenty-four hours the serum in these two tubes was used to vaccinate the same calf which had served for the previous experiment. Several points were scarified upon the left thigh and upon the left side of the abdomen, which were carefully shaved for the purpose.

"At the same time the animal was vaccinated upon the right thigh and upon the right side of the abdomen with virus mixed with the blood serum from the immune calf. This serum, collected in Sternberg's bulbs on the 28th of April, had since been kept in the ice-chest. One hour before the vaccination four drops of this blood-serum were mixed with one drop of liquid lymph, which had been recently collected by Dr. Griffiths in a capillary tube from a vaccinated calf. At the same time three quills charged with bovine lymph were immersed in four drops of the same blood serum from immune calf. As stated, the animal was vaccinated upon the right side of the abdomen and upon the right thigh with this virus, which had been exposed for one hour to the action of blood-serum from an immune calf. The serum containing the liquid lymph was rubbed into the scarification on the right side of the abdomen, the serum containing lymph from the quills into the right thigh. On the 19th of May, eight days after the vaccination, the animal was carefully examined by Dr. Griffiths and myself, and the following results noted: Upon the left thigh and left side of the abdomen the vaccinations, from quills in non-immune blood-serum after twenty-four hours' contact—were entirely successful, the scarification being surrounded by characteristic vesicles and covered by characteristic crusts. Upon the right thigh, vaccinations from quills immersed in blood-serum from immune calf for one hour—and upon the right side of abdomen—vaccinations with liquid lymph mixed with blood-serum from immune calf, the result was entirely negative. Several of the scarifications had entirely healed; others were covered with a dry scab which was easily detached and under which the scarification was healing without any appearance of vesicles such as surrounded the scarifications upon the left side."

of blood-serum are required to produce immunity in a healthy animal appears to indicate that a specific therapeutic effect can not be expected from the subcutaneous injection of a few cubic centimeters of serum, or even from the transfusion of several hundred cubic centimeters. As already mentioned, the experiments of Chaveau, of Raynaud, and of Prof. Straus and his associates, upon calves, agree in showing that the immunizing dose of blood-serum is several kilograms, and that the transfusion of less than 1,000 grams usually has no appreciable effect.

In two cases of smallpox treated by Dr. Elliott, with serum collected by Kinyon (1895) the result is supposed to have been favorable, although one of the patients died. This patient received in all 60 c.c. of the serum, in doses of 15 c.c., injected subcutaneously. In the second, non-fatal case, 105 c.c. was administered in the same way "during a period of forty-eight hours." Dr. Elliott says: "There was no effect on the eruption in the first case. It is my opinion that the vaccine serum will shorten the course of variola if given in the papular stage of the eruption. The vaccine serum does modify the variolous eruption, even in the pustular stage, but does not shorten the attack. The most serious objection to its application is the largeness of the dose, 15 to 30 c.c., which leads the patients to object to its use."

Landmann (1894) injected 25 c.c. of blood-serum, from an individual who had recently recovered from an attack of smallpox, into a child, 5 years of age, suffering from an attack of confluent smallpox. No noticeable effect was produced.

Auché (1873) had previously reported a negative result from the subcutaneous injection of serum obtained from recent convalescents—6 c.c. in one case and 18 c.c. in another.

Béclère, Chambon and Ménard, in their recently published paper, to which we have already referred, say that they have made clinical experiments to determine the therapeutic value of blood-serum from an immune animal in seventeen cases of variola, and that the results of these experiments will shortly be published. Possibly their report may be more favorable than we now anticipate.

In view of the large quantity of blood serum required to produce immunity, and, by inference, to have a specific therapeutic effect in smallpox, it is evident that an effort should be made to obtain the immunizing substance in a more concentrated form. Already, Dr. Reed has made some preliminary experiments in this direction at the Army Medical Museum, and he has ascertained that a dried precipitate from the serum of an immune calf, obtained by the method of Brieger and Cohn, contains a substance which neutralizes the action of vaccine virus, when brought into contact with it before vaccination. A comparative test showed that the dried precipitate from the serum of a non-immune calf has no such effect.

The conclusions reached and suggestions made in this paper may be summarized as follows:

1. Smallpox, cowpox and horsepox are genetically related, being different manifestations of the same infectious disease in different genera of animals (Man. Bos. Equus).

2. The specific infectious agent of variola and of vaccinia has not been demonstrated. The extended experimental investigations which have been made indicate that it does not belong to the class of micro-örganisms known as bacteria.

3. Various bacteria are commonly found in the lymph from vaccine vesicles, obtained either from bovine animals or from man. Among these are the well-known pus cocci, and these micrococci are probably largely responsible for the erysipelatous inflammation and other unpleasant complications which frequently result from vaccination with such lymph.

4. Lymph preserved in glycerin after a time becomes sterile so far as the presence of bacteria is concerned, without losing its specific virulence.

5. Immunity may be induced by subcutaneous inoculation of vaccine virus, without the development of a vaccine vesicle; and *it is probable that the subcutaneous injection of lymph preserved in glycerin would give protection without any of the septic complications so common as a result of vaccination by the usual method.*

6. The blood-serum of immune animals contains a substance in solution which destroys the specific virulence of vaccine virus when brought in contact with it.

7. This substance is not present in sufficient amount to make the blood-serum of immune animals available for the production of immunity in man (or for the treatment of variola?). But it may perhaps be obtained in a concentrated form by chemical methods, and in that case would be likely to prove useful, and possibly specific as a therapeutic agent in this disease.

8. The immunity resulting from the subcutaneous injection of vaccine lymph, like that resulting from vaccination in the usual manner is gradually developed and is not complete until the eighth day,[3] depending, no doubt, upon a multiplication of the infectious agent in the body of the susceptible animal. On the other hand, the immunity resulting from the transfusion of a large amount of blood serum from an immune animal to a susceptible animal is an immediate result of such transfusion.

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VAGINAL HYSTERECTOMY FOR FIBROIDS OF THE UTERUS.

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HISTORICAL.

Vaginal hysterectomy is closely associated in its early history with cancer of the uterus. Greig Smith says, that it is probable that incision of the uterus was practiced by the ancient Greeks, but it is certain that it was subsequently forgotten. Soranus, in his book of "Diseases of Women," who lived in Rome a century before Christ, describes the operation as a surgical procedure for prolapsus. The first authenticated description of vaginal hysterectomy subsequent to this was given by Berengarius, of Bologna, in 1507.

In 1560 Andreas A Crucé performed vaginal hysterectomy. J. Schenck a Grafenberg 1617 (Senn) relates a number of cases in which the uterus was removed through the vagina in whole or in part by ignorant persons who had not the faintest idea as to the difficulty or of the extent and gravity of the operation. In 1792 Saumonier removed an inverted uterus below a ligature. Hildanus 1646, Wrisberg 1785, Bernhard 1824 reported cases of accidental or unintentional removal of uteri by the vagina by careless midwives and others. Intentional removal of the uterus by surgeons have been reported by Zwinger, Vieussen, Baxter, Faivre, Alexander, Hunter, Joseph Clark and Jackson. (Senn.)

The real history of vaginal hysterectomy begins when it was deliberately planned and executed for the relief of definite pathologic conditions. To J. M. Langenbeck in 1813 belongs the credit of opening this page of history. He removed the uterus by enucleation, using neither clamps nor ligatures and his case recovered and lived many years. The post-mortem demonstrated to his incredulous critics the truth of his claim. Sauter, Jan. 28, 1822; Elias von Siebold, April 19, 1823; Holscher, Feb. 5, 1824; Elias von Siebold, again July 25, 1825; Langenbeck, again Aug. 5, 1825; Recamier, July 26, 1829; Langenbeck, again Aug. 18, 1829; Roux, Sept. 20 and Sept. 25, 1830; Recamier, again Jan. 13, 1830; Blundell, Oct. 16, 1830. Siebold 1831, Delbach 1839 are the bold pioneers who followed the lead of Langenbeck in Europe. From 1839 to the revival of Czerny in 1878 there are no records of European cases. In America, however, a few cases were put on record during this long interval. Palmer Dudley reports that Dr. John M. Esselman, of Nashville, Tenn., in September, 1834, removed an inverted uterus by means of the ligature, his patient recovering. This same surgeon repeated the operation successfully in August, 1843, for an inverted uterus containing a fibroid. This is the first vaginal hysterectomy for fibroids of the uterus I find recorded. The first vaginal hysterectomy for cancer deliberately undertaken and successfully executed in this country was performed by Dr. Paul F. Eve, of Augusta, Ga., April 16, 1850. (*Am. Journal of Medical Science*, 1858.) Dr. L. C. Lane, of San Francisco, operated for cancer Nov. 11, 1878, and at a later date in the same year on a second case for cancers. Both cases recovered. Lane executed this operation independently of Czerny, who revived the operation in Europe by performing his first operation April 12, 1878, or seven months earlier than Lane.

From the revival of Czerny and Lane, with the dawn of clean surgery, the operation of vaginal hysterectomy became a legitimate operation. In less than twenty years it has made wonderful strides. It has been performed thousands of times by hundreds of operators, and has, undoubtedly, been the means of adding many years to the sum total of human life.

VAGINAL HYSTERECTOMY FOR FIBROIDS.

It is argued that a patient suffers less real shock, on an average, when submitted to a vaginal hysterectomy than when operated upon by the abdominal route. The only rational explanation that can be forwarded to account for this fact is that the intestines and the peritoneum are not subjected to exposure to the air in the vaginal route, nor are they subjected to the handling which they are liable to receive in the abdominal operations. While in our improved methods, the abdominal contents are exposed and handled to a small degree compared to former times, at the same time we can not help but recognize that there is less shock after a perfect vaginal hysterectomy than after an abdominal hysterectomy in cases of like severity. A vaginal hysterectomy avoids the abdominal scar, which so many patients dread as a brand of mutilation which must be carried through life after all abdominal operations. Many patients I find have this wholesome dread to such a degree that there seems to be no comparison in their minds between the two operations. An abdominal operation contains all the horrors of a most dreaded affair, while a

vaginal operation with no sign of mutilation left, is contemplated like a normal labor with dread but resignation. An abdominal scar, it is true, will frequently become the seat of considerable irritation and rarely the seat of severe neuralgic pains. There is always, too, the remote possibility of ventral hernias developing in an abdominal scar. It is also claimed, by not a few operators, that safer and more satisfactory drainage can be obtained, when it is required, through the vaginal route than by the abdominal. However, as soon as we undertake to do a vaginal hysterectomy on anything but the smallest kind of a fibroid, we are hampered by the narrow limits in which we have to do our work, and, therefore, if the tumor is of considerable size, the extra time its proper removal from the vagina requires, off-sets what is gained by non-exposure of the abdominal viscera. So that the rational surgeon must discriminate here, as everywhere else in surgery, and select the operation which best suits the individual case. If he has a small fibroid, or a large fibroid with relaxed ligaments and a large, roomy vagina, he should select the lower route; whereas, if he has a large fibroid high in the pelvis, or a small one with a narrow, contracted vagina and rigid tissues he should do a laparotomy and remove the tumor from above.

Methods.—Vaginal hysterectomy for fibroids may be divided into two grand divisions: 1, removal of the uterus and its fibroid masses as a whole without division, or vaginal hysterectomy proper; 2, removal of the uterus and its accompanying fibroid development in piecemeal or morcellement.

1. VAGINAL HYSTERECTOMY PROPER.

Indications.—Vaginal hysterectomy proper for fibroids must of necessity include only the smallest tumors, or at best fibroid uteri with long, slender subperitoneal projections. The operation is often the ideal method of treating small multiple fibroids, which are so frequently the seat of severe uterine pain and excessive hemorrhage. Fibroids of considerable size may frequently be treated by vaginal hysterectomy, when the uterus is low in the pelvis and the vagina is large and the tissues loose. It is an easy matter to turn a complete vaginal hysterectomy for fibroids into a morcellement should any unlooked for enlargement manifest itself.

TECHNIQUE OF VAGINAL HYSTERECTOMY PROPER.

The patient should be prepared with the same care and manner that I have described in my article on preparatory treatment for laparotomy. Special care should be maintained to render the vaginal tract and external genitalia aseptic. The patient should be anesthetized with ether. She should be placed in the exaggerated lithotomy position with the limbs supported by some mechanical device which will hold them firm and for any required length of time. Otherwise, they should be supported by strong skilled assistants on either side, who will also hold the vaginal retractors. Immediately before the operation begins a nurse or a third assistant should thoroughly scrub the external genitalia and the vagina with green soap. This should be thoroughly rinsed off, and the parts should be thoroughly washed with 95 per cent. alcohol and finally rubbed with 1 to 1,000 bichlorid of mercury and then douched off with sterilized water. Moist sterilized towels are placed around the field of operation. The operator takes a seat at the foot of the table on a small stool. At his right are his instruments with the surgical nurse to do his bidding. At his left is the nurse who superintends the irrigator of sterilized water and handles the sponges.

Operation.—Two small vaginal retractors, with short broad blades, are introduced and held by the assistants so as to retract the anterior and the posterior vaginal wall and expose the cervix uteri. The cervix is grasped by a light pair of vulsellum forceps with four teeth, the uterus rapidly dilated by first introducing a small dilator and then a large strong one, until its interior can be reached and thoroughly explored with a sharp curette. The uterine cavity is thoroughly curetted and then rendered aseptic by washing out with a solution of 1 to 100 bichlorid of mercury. It is then loosely filled with sterilized gauze. Through the cervix, by means of a curved needle, is passed a strong double handling string of braided silk, and this is tied over the os uteri in such a way as to close the canal. The vulsellum forceps are now removed and the strong silk ligature is henceforth employed as

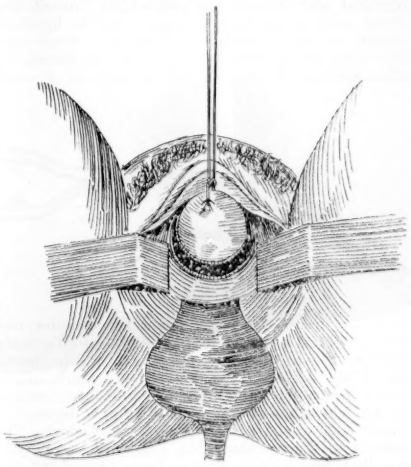

FIGURE 1.

a means of handling the uterus. The uterus is now drawn well down by making strong tractions and the cervix drawn back so as to expose the anterior utero-vaginal fold. With a curved scissors the mucous membrane of the vagina at its attachment to the uterus anteriorly is penetrated and the incisions carried to the right and to the left following the utero-vaginal junction, until the incisions meet posteriorly and the uterus is completely severed from the vault of the vagina (Fig. 1). The assistant now grasps the handling string and makes downward and backward traction, while the operator with the index fingers of both hands carefully separates the bladder from the anterior surface of the uterus. If there are any firm bands connecting the two organs, they should be severed with scissors near their uterine attachment, always keeping the point of the scissors against the firm uterine tissue. As soon as the utero-vesical fold of the peritoneum is reached with the fingers the two fingers should be separated laterally, so as to detach the bladder from the anterior surface of the broad

ligament, and also for the purpose of pushing the ureters, which pass under the broad ligaments near the cervix, well to the sides of the pelvis.

The assistants now draw the cervix forward and the operator separates the uterus from its posterior attachments and the two fingers penetrate through the peritoneum into Douglas' cul-de-sac. The fingers are then separated laterally tearing the peritoneum in that direction. A large dry gauze sponge, with a string attached, is pushed through this opening and spread out above the uterus. The broad ligaments and the appendages are then rapidly examined. The peritoneum in front of the uterus between it and the bladder is now torn through and the broad ligaments are the only attachments left between the uterus and the patient. If the uterus is not too large and the broad ligaments are loose and the vagina large, one pair of strong forceps will secure each broad ligament. The uterus is drawn well down and the operator slips his index finger of the left hand behind the left broad ligament and crowds the appendages toward the uterus until he can hook the finger over the ligament outside of the appendages. With the uterus held well down and steadied by one of the assistants, the other assistant holding the bladder well out of reach

FIGURE 2.

by a long narrow bladed retractor, the operator with his right hand slides a strong pair of Byford's clamp forceps (Fig. 2) over the broad ligament, the posterior blade following the lead of the index finger, which is still holding the ligament, until they include its whole width, and project half an inch beyond its upper edge when they are closed and locked. The jaws of the forceps should be examined carefully to see that they include all the tissues necessary, and that it compresses all portions sufficiently. The locks of the forceps should be securely tied. With the index finger guiding the scissors, the clamped ligament is now severed close to the uterus. If the uterus is not too large and the right broad ligament is long the organ can be delivered as the next step and when delivered the right broad ligament may be clamped with ease outside of the vulva. If this is possible the clamp should be applied outside of the appendages and the uterus cut away. Frequently, however, the uterus can not be delivered until the other clamp is applied and the ligaments severed. Under such circumstances the forceps should be carefully applied exactly like the first one and the ligaments divided with the scissors from below upward while the assistant makes slight traction on the uterus until the organ is free, when it is delivered. The broad ligament forceps are carefully examined now, to be sure that each is doing all the work required of it, viz., including the whole ligament in its grasp and finally compressing every portion sufficiently tight to maintain hemostasis. Should any portion need reinforcing, a small pair of straight hemostatic forceps may be applied to the projecting free end of the severed tissue. Occasionally it is not practicable nor safe to include the whole broad ligament in one pair of forceps because of its width and bulk, while again it may be difficult to place the forceps on the whole ligament at once, because of a too narrow vagina or a highly situated uterus with short ligaments. Here the bulky base of each broad ligament should be clamped first, with short stout catch forceps and the ligaments severed up to within a short distance of the forceps' bite. The uterus then can be drawn down and the remaining portion of the broad ligaments can be secured in one pair of forceps on each side. The last forceps are placed on the uterine side of the first forceps. The forceps are now held by the assistants to their respective sides of the vagina with their handles separated in such a manner as to act as lateral retractors. The sponge is removed from the pelvis and the toilet of the peritoneal cavity is made by drying it with sponges on holders. The posterior retractor is now inserted and the operator seeks the edge of the peritoneum which covers the bladder, grasps it with a catch forceps and draws it down and with a running stitch of antiseptic catgut attaches it to the upper end of the anterior vaginal wall. An anterior retractor is now inserted and the edge of the peritoneum covering the rectum is attached to the upper end of the posterior vaginal wall in the same manner. This insures hemostasis of the anterior and posterior vaginal edges, and covers an otherwise uncovered gap of connective tissue space.

Drainage. — The forceps are widely separated, two narrow retractors hold open the vagina anteriorly and posteriorly, a square piece of sterilized iodoform gauze two feet wide is placed with its center over the vulva, and with a large pair of dressing forceps its folded center is carried well into the vagina beyond the ends of the forceps, so as to form a bag. It is then loosely packed with strips of sterilized iodoform gauze and the edges of the filled bag is left projecting several inches from the vulva. It is folded over the vulva. The handles of the clamp forceps are wrapped in gauze. A liberal supply of absorbent cotton is placed over and around the forceps and over the perineum and vulva, and all held in place by three small perineal bandages, one passing between the handles of the forceps and the other two outside of the forceps handles.

VAGINAL HYSTERECTOMY BY MORCELLEMENT.

Indications.—Vaginal hysterectomy by morcellement may be done for fibroids of considerable size, the limit of maximum size on which the operation may be safely undertaken depending on the skill and experience of the particular operator. The writer does not favor the operation where the uterus is too large to deliver easily after bisecting, preferring to undertake such cases by the abdominal route. The operation is now performed every day, however, by an increasing number of skillful men on fibroids of every size, even on tumors reaching well above the umbilicus.

Polk, a firm believer in morcellement for fibroids, lays down the following indications: 1. Whenever the mass is largely within the pelvis, especially if it is fixed therein by adhesions. 2. Whenever the mass

is soft and, therefore, compressable as in myoma and fibrocystoma. 3. In all other cases where we have a patient in good condition whose pelvis is shallow, where the vaginal canal is roomy, and in whom the evidence of a pyosalpinx above the pelvis brim are absent. Péan, Segmond, Richelot, Jacobs, Henrotin and others do not make suppurating appendages a contraindication to this method of operating.

TECHNIQUE.

Cases with Uterus only Double its Natural Size.—In these cases the technique is very similar to that for simple vaginal hysterectomy, with the exception that the uterus is bisected with an antero-posterior incision.

Step 1: The vagina is severed close to the cervix, as in ordinary vaginal hysterectomy, and the uterus denuded until the posterior and anterior cul-de-sacs are opened.

Step 2: Grasp the anterior lip of the cervix on either side with strong bullet forceps or two well embedded handling strings, and making strong traction split the anterior wall of the uterus with strong scissors with the posterior blade guided by the uterine canal

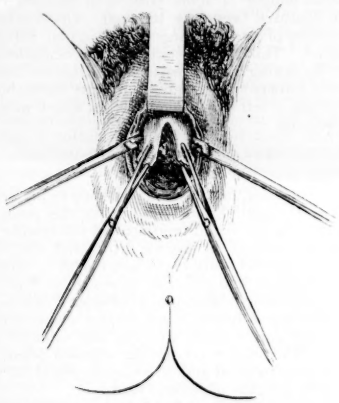

FIGURE 3.

(Fig. 3). When the scissors have reached the limit of exposure of the uterus the edge of the split uterus at the highest point of the incision should be grasped by the bullet forceps, and with this new grasp the uterus should be drawn down still farther and the splitting process continued. When the uterus is usually movable or the broad ligaments unusually long, sometimes at this point the partially split uterus is completely anteverted and the fundus is delivered. As a rule, however, whenever it is necessary to split the uterus at all in order to remove it, the bisecting must be carried to completion.

Step 3: When the bisected uterus is well drawn down, the increased movability of the organ in consequence of being in two pieces enables one to clamp the broad ligaments with one, or at most two forceps, and the respective halves are removed. After one side has been cut away it is an easy matter to clamp and remove the opposite half.

Step 4: Finish operation and apply drainage as in simple vaginal hysterectomy.

Variations of Procedure.—If it is convenient it is often better to attempt to clamp the broad ligaments immediately after opening the two cul-de-sacs, in order to save the patient as much blood as possible. When it is not possible to clamp the whole broad ligament, the base of the ligaments with the uterine arteries may be secured. As a preliminary every precaution should be observed to render the cavity of the uterus aseptic.

Cases with Uterus More than Double Its Normal Size.—In these cases the uterus must be removed by piecemeal. In order to accomplish this so as not to make a horrible failure, a thoroughly systematic course must be observed by one skilled in the details of pelvis surgery and surgical emergencies. No two cases are alike. Consequently no two operations are ever identical.

Step 1: Circular incisions around the cervix, after first grasping the anterior and the posterior lip of the cervix with strong forceps. The uterus is denuded anteriorly and posteriorly and the posterior

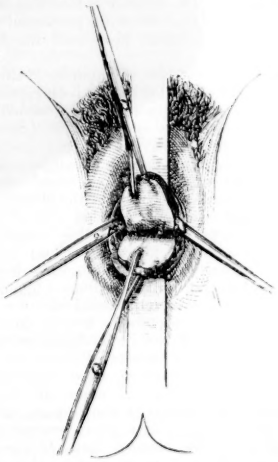

FIGURE 4.

cul-de-sac is opened. An attempt is then made to enter the anterior cul-de-sac.

Step 2: Clamp forceps are now placed on the base of each broad ligament high enough to include the uterine artery and its branches, and the ligaments are cut nearly as high as the point of the clamp.

Step 3: The cervix is split into halves by a lateral incision on the line of the uterine canal with strong scissors or a knife (Fig. 4).

Step 4: With the anterior lip well drawn down and firmly held, the posterior lip is drawn well down and amputated. The remaining stump of the posterior half of the uterus is firmly grasped in forceps, keeping the uterus well down in the field of operation.

Step 5: If the uterus is not too large at this point a single clamp forceps may be placed on the remaining portion of the broad ligament.

Step 6: With hemostasis well secured from this point on the splitting of the uterus is continued and morcellation is proceeded with by amputation of first one-half or a portion of a half and then the other, sever-

ing the broad ligaments by degrees until by piecemeal the whole uterus is removed. Care should be maintained to have a secure hold of the uterus with forceps at some point besides the point of amputation at all times, in order that it may not slip out of the field of operation. As soon as the uterine mass has been reduced sufficiently so that it may be delivered it should be removed. Care must be exerted to secure all large subperitoneal masses which from their situation might by carelessness be accidently separated from the tumor and escape beyond the reach of the finger or forceps. As the morcellement progresses a finger in the posterior cul-de-sac from time to time learns facts of value to the operator.

Remarks.—The care of the forceps and the care of the vaginal and peritoneal edges, after this modified operation, is identical to that after the simple operation. The toilet of the operation field and the drainage is the same. If adhesions exist they must be carefully separated. If the anterior cul-de-sac is elevated so that it can not be entered before amputation is commenced, amputation should be proceeded with and the uterus gradually drawn down until the cul-de-sac can be opened.

Accidents to be avoided.—Wounding of the bladder or intestines and clamping one or both carelessly are accidents which must be carefully guarded against in vaginal hysterectomy of any kind. Severing of important blood vessels before they are securely clamped is another annoying accident, because of the tendency of the unsecured blood vessels to retract into the loose connective tissue of the broad ligament, where they will continue to bleed out of reach of hemostatic forceps. To avoid this accident great care should be observed to securely clamp all tissues before severing, and if there is the slightest doubt about the security of any portion of the divided ligament after it has been cut a second clamp should reinforce the first. To avoid clamping the ureters the forceps should not be applied to the base of the broad ligament until the bladder is thoroughly separated from its anterior surface, until the finger can sweep between it and the broad ligament to the sides of the pelvis. This insures the pushing of the ureters out of the reach of the forceps. This same maneuver insures the integrity of the bladder also. If the bladder is found so adherent at any portion that it is not readily separated with the finger, scissors should be employed to dissect it from the face of the uterus or tumor, great care being observed to avoid wounding the bladder with the scissors by keeping the point of that instrument against the uterus. By following the imperative rule of separating the bladder early and keeping it out of the field of operation by the use of an anterior retractor, it will never be wounded. To avoid wounding the rectum the same care should be observed in entering the posterior cul-de-sac as is exerted in opening the anterior one. If one carelessly opens this pouch, it is an easy matter to strip the peritoneal covering of the bowel posterior to the cul-de-sac and miss entering the peritoneal cavity entirely; while by ignorantly pursuing this false track the rectum may be penetrated. To avoid this embarrassing predicament *stick to the uterus.* If one does strip off a portion of the uterine peritoneum it will do no harm and the rectum is safe.

USE OF LIGATURES FOR VAGINAL HYSTERECTOMY.

By some operators ligatures are employed for securing hemostasis instead of clamps. In simple, uncomplicated cases ligatures may be employed with ease. In morcellement, where high and excessive manipulation is required the ligatures are impracticable because of the difficulty of applying them, and because of the difficulty of preventing them from becoming loosened by the subsequent manipulation of the parts. When ligatures are employed they prolong the convalescence if they are left long and allowed to ulcerate away. The time required for the accomplishment of that act is from twelve to forty days. During all this time it requires great diligence on the part of the attendant to prevent infecting of the ligatures; in fact, it is seldom prevented. An offensive vaginal discharge bears evidence of the fact, until the ligatures are finally discharged. If ligatures are employed and cut short, with the idea of burying them, it frequently happens that they become infected, even when the greatest care is observed to preserve cleanliness. The reason for this is the necessity for drainage in almost all of these cases. The method of drainage makes the wound practically an open one. Hence the danger of some portion of the otherwise buried ligatures becoming infected. Once infected long months of pus discharge from vaginal fistula is the sequel. This is all avoided when hemostasis is secured by strong forceps, because the means of hemostasis (the forceps) are removed in forty-eight hours, and nothing is left of a foreign nature which may become infected.

AFTER-TREATMENT OF VAGINAL HYSTERECTOMY WITH CLAMPS.

Shock is treated on the lines laid down in my article of two weeks ago. I must, also, refer the reader to that article for the detail treatment of the bowels and care of the patient as regards drink, diet, etc. The bladder is emptied every eight hours with a catheter until the forceps and the first drainage is removed. The catheter should be employed oftener if it is necessary. The nurse employs an aseptic glass catheter with a small nozzle which will run the urine off into a bottle. The urethra is carefully exposed before the catheter is introduced and thoroughly wiped off with a saturated solution of boracic acid.

Forceps.—The locks of the forceps are carefully tied at the time they are put on to avoid accidental unclasping of their blades. The handles are kept covered with sterilized gauze. If it gets soiled at any time it is changed. At the end of twenty-four hours all but the principal forceps are removed. The string securing the lock is cut, the lock unfastened carefully, the blades opened enough to loosen their grasp on the tissues and then they are carefully removed. At the end of forty-eight hours the main forceps are removed in the same manner. If the tissues in any particular case showed unusual tendencies to bleed at the time of the operation I allow the forceps to remain twenty-four hours longer. When the large forceps are removed they should be opened widely before an attempt is made to withdraw them, and then they should be brought out with a backward motion in order to avoid catching the tissues with the projection on the posterior blade.

Dressing.—If the external portion of the drain becomes soiled with accidental discharges of urine or excessive drain fluid it should be removed and replaced with a new external pad of loose sterilized gauze as often as is necessary. Twelve hours after the last

forceps are removed about one-third of the external gauze drain should be removed and a fresh pad of gauze placed over the vulva. In twenty-four hours another third should be extracted, and in twenty-four hours more, or sixty hours after the last forceps are removed, all of the balance should be taken out. When the last gauze is removed an external irrigation should be employed of 1 to 5,000 bichlorid solution followed by a plain water irrigation. A small sterilized iodoform drain should now be carried carefully about three inches into the vagina on a strong pair of dressing forceps, and the end of the drain allowed to protrude from the vagina. Over this is placed an antiseptic absorbent pad. In twenty-four hours this drain is removed and then eighty-four hours after the last forceps are removed, and the peritoneum has had ample time to close, the first vaginal douche is given.

Douches.—This douche must be given with extreme care by a nurse who understands all the responsibility she is entrusted with. The douche point must be made of glass, bulbous, with openings directed only at right angles to it. The patient should be placed on her back at the edge of a bed with feet supported on two chairs. A Kelly pad should be under her buttocks. The reservoir containing sterilized water of a temperature of 105 should be placed but eighteen inches above the patient's hips, in order to have but slight pressure. The nurse after thoroughly preparing her hands, inserts two fingers into the vagina about two and one-half inches, and between the fingers extending to within one-half inch of their extremities is inserted the douche point. The water is turned on with every precaution employed to secure immediate and free return current. The douche is repeated in this way, the nurse introducing the fingers and douche point a little further each time until the vault of the vagina is reached, every twelve hours until the sixth day from the removal of the forceps, when 1 to 5,000 bichlorid of mercury solution may be substituted for the plain douche, always following the bichlorid douche by a plain one. It must be obvious why I insist on the great care in employing this douche. The peritoneal cavity is expected to close in a few hours after the gauze is removed. Frequently, there is no doubt, it is closed off a few hours after the operation is finished. Notwithstanding this tendency to early closure of the peritoneal cavity, carelessness in employing the first few douches, if free return stream was not provided and great pressure employed by placing the reservoir high, might result in breaking up the union of the tissues and fill the abdominal cavity with the fluids and *débris* of the vaginal tract. After each douche the vulva should be covered with an antiseptic pad. After each urination or movement of the bowels the external parts should be douched off with sterilized water and the antiseptic dressing renewed.

Getting Up.—Patients manifest a desire to get up earlier after vaginal hysterectomy than after abdominal operations. There is less prolonged reaction in the way of nervous exhaustion as there is less immediate shock with the vaginal operation. I allow my patients to begin to sit up on the twelfth to fifteenth day. They can leave the hospital from the twentieth day onward.

Results.—I have performed vaginal hysterectomy for uncomplicated fibroids of the uterus forty-one times; one death resulted from the operation. At least twenty of these cases were performed with clamps as the exclusive means of securing the broad ligaments. In the balance of cases ligatures of silk alone or ligatures reinforced with forceps were employed. The majority of my cases were small tumors. In two cases there was a troublesome hemorrhage within twelve hours after the operation, from the vaginal edges, which was, however, easily controlled by applying small catch forceps to the bleeding point. I opened the bladder in one of my early cases; it was subsequently closed in a secondary operation. I have never had secondary hemorrhage or the slightest oozing after removing the clamps. I have never had a vaginal hernia. I have never had a troublesome vaginal fistula. In one case where ligatures were used and left long they did not come away for nearly six months.

Dr. Edward Garceau of Boston, to whose writings on vaginal hysterectomy I am indebted in preparing this article, gave in his excellent paper on "Vaginal Hysterectomy as Done in France," in the *American Journal of Obstetrics*, Nov. 3, 1895, the following table of operations with their results, to which list I add my own cases. A list like the subjoined can not be said to represent the average mortality of the operation because it includes the work alone of the most experienced operators in this line in several countries. At the same time it must be remembered that this represents pioneer work in a comparatively new procedure.

Operator.	Cases.	Deaths.
Mayer	1	0
Péan	200	4
Jacobs	22	2
Mangiagalli	8	0
De Ott	100	0
Carle	22	0
Calderini	1	0
Bockel	3	0
Routier	6	0
Richelot	43	1
F. H. Martin	41	1
	447	8

This gives a mortality of 1.7 per cent.

SELECTIONS.

Amount of Carbonic Acid Exhaled from the Lungs.—The *Gaz. degli Osp. e delle Clin.*, March 28, describes an apparatus invented by Mosso for this purpose. Other kinds of apparatus are very complicated and not portable, while this one is comparatively simple and can be easily carried about. It consists of a rubber mask to put over the mouth and nose, terminating in a tube which carries the air through two Muller valves to a rubber bag, connected with which is the register and a water valve, ending above in a T-shaped tube. One end of this tube is connected with a syringe that pumps up the air through the connecting tubes, which contains an aqueous solution of barium hydrate. By removing the tubes the amount of carbonic acid is easily found. The proportions in several half-hour tests were, 11 grams of carbonic acid in 187 liters of air; 10 grams with 172 liters and after a meal, 228 liters with 14 grams of acid. In sleep one trial showed 193 liters with 13⅓ grams. The inventor proposes to make a comparative study of the elimination of carbonic acid after eating, fatigue and various illnesses.

Abdomino-Perineal Method of Extirpating a Rectal Cancer.—Some members of the Paris Société de Chirurgie have been experimenting with a new method of removing cancer of the rectum, which has as yet only been performed on one living subject, and who succumbed a few days after to accidental dyspnea. The large intestine is drawn out through an opening in the abdomen and a couple of ligatures made, four centimeters

apart, above the extreme limit of the neoplasm, and a section made between. The ends are ligated again and covered with iodoform gauze. An incision is then made in the recto-vesical perineal pocket, and the rectum below the section detached as much as possible. A circular incision is then made at the anus, after which the entire rectum is drawn up and out through the perineal incision which is then entirely closed. An artificial anus is then made from the end of the intestine above. This method is adapted to those cancers which extend from the anus twelve to fifteen centimeters upward, where the rectum can still be made to slide on the neighboring organs. If the growth prevents this slipping of the rectum it is beyond any operation.—*Bulletin Médical*, March 29.

Varicella Fatal Through Intercurrent Laryngitis.—Drs. Marfan and Halle have reported two cases of severe laryngitis, one preceding, the other accompanying varicella, in *Revue mensuelle des Maladies de l'Enfance*. In both cases it was "Löffler absent," in the second case, the infant being feeble, the attack was fatal. The first case, an infant of 3 years, was brought under observation after an illness of three days' duration. The voice was hoarse and respiration difficult, with the supra- and infra-sternal depression. The fauces were reddened, but in other respects showed no abnormal condition. After twenty-four hours an injection of 20 cubic centimeters of antidiphtheritic serum was made and cultures taken. The same evening the first vesicles of varicella appeared upon the surface. The laryngeal symptoms increased, and on the following day called for tracheotomy. The first cultures from the throat and later ones made directly from the trachea by way of the canula demonstrated the absence of the Löffler bacillus. After three days the canula was removed and the case went on to complete recovery.

The second case occurred in a weekly infant of 9 months. When brought to the hospital with marked symptoms of laryngeal obstruction, a profuse confluent varicella eruption was noticeable. The throat was free from false membrane and was scarcely reddened, while no trace of vesicles was found upon the buccal mucosa or upon the pillars and uvula. This case was also regarded as probably one of primary laryngeal diphtheria complicating varicella, and an injection of antitoxin was made by Roux. Cultures taken at the same time subsequently showed the absence of diphtheria bacilli. Death occurred on the seventh day from acute diarrhea and broncho-pneumonia. The autopsy showed a small, round, deep ulcer at the posterior part of the margin of the right vocal cord.

These two cases of varicella of the larynx determined a stenosis, giving the clinical picture of a true croup, and are in the authors' opinion unique examples. The only case of varicella involving the larynx previously reported is that recorded by Boucheron in his thesis ("Etude sur les complications respiratoires de la varicelle et relation d'un cas de varicella du larynx," Paris, 1893), in which the affection took the aspect of a spasm of the glottis without symptoms of laryngitis. The case terminated fatally by suffocation during an access of the spasm. The authors conclude that involvement of the larynx in varicella occurs early, about or shortly after the appearance of the eruption, a point that serves to distinguish it from secondary and unrelated infections. Anatomically this laryngitis is characterized by small ulcerations, circular, few in number, seated usually upon the true cords. About these ulcers the mucous membrane may be the seat of hyperemia, more or less intense and extended. These two lesions explain the two forms under which the complication occurs, as is shown by the authors' cases on the one hand and by Boucheron's on the other.

NECROLOGY.

JOHN JOSEPH DALY, M.D., of Rahway, N. J., died April 14, in the forty-fifth year of his age. He was the mayor of that city and the day of his death was the aniversary of his last election to the mayoralty in 1895. He was born in Rahway in 1852, and was graduated from the Medical Department of the University of the City of New York in the class of '73. He practiced medicine and surgery in Rahway with much success. He was first elected mayor of Rahway in 1885, and was four times reëlected, and once defeated. He was city physician of Rahway for several years.

CLARENCE L. FITCH, M.D., died suddenly April 13, in New Haven Conn., of heart disease. He was born in Walton, N. Y., 38 years ago, and was graduated from the Dartmouth College in 1882. He had been in New Haven thirteen years and had built up a large practice. A widow survives him.

DR. ALEX. B. ERNST of Covington, Ky., died at his home April 21, from tuberculosis following repeated attacks of la grippe. Dr. Ernst was born in Covington, July 18, 1863, and his parents were one of Kentucky's most distinguished families. He was educated at Chickering Institute, Princeton College, and received his degree of M.D. from the medical college of Ohio in 1888. Dr. Ernst enjoyed a lucrative practice and was a most universal favorite among his associates and a much beloved physician to his patients.

J. B. K. MIGNAULT, M.D., of Detroit, Mich., April 25. He was born in Montreal, Canada, in 1817, and received his medical education at McGill College. In 1850 he went to Detroit after having practiced ten years in Mt. Clemens. After an active term of medical service during the rebellion he removed to Mt. Clemens and established mineral baths. In 1875 he returned to Detroit and retired from practice in 1882.

BOOK NOTICES.

Consumption: Its Nature, Causes and Prevention; with an outline of the Principles of Treatment, for all classes of readers. By EDWARD PLAYTER, M.D. Toronto: Williams Briggs, pp. 340.

We opened this book with an intention of glancing through it hastily, and ended in reading it carefully. It has been written in a clear, concise manner, and is so free from technical phrases that it will be easily comprehended by the non-professional reader. Indeed, it is one of the few books written on this subject that can be safely placed in the hands of the patient. Starting with a definition of consumption and a chapter devoted to the function of the lungs, a considerable portion of the work is devoted to the causation, giving the following among other causes: "The tubercle bacillus is an essential factor in the production of tubercular pulmonary consumption. The tubercle bacillus does not become a cause in the production of the tuberculous state, except in a special condition of the human body in what is termed a suitable soil. Persons with a defective respiratory action from any cause are more liable to have toxic substances formed in the body; and which probably influence the action of microörganisms present therein, including tubercle bacilli. The so-called soil for the pathogenic action of this bacillus in the lungs seems to be invariably furnished by persons with a defective breathing function as particularly evidenced by the 'outdoor' or 'pure air' treatment of the disease, with special lung expansion for increasing the breathing function. Particular stress is laid upon the belief that a defective respiratory function with the retention in the body of waste or excrete substances, and the toxic compounds generated thereby is the actual, immediate or exciting cause of consumption." Heredity, want of the natural body defenses, habits and conditions of life, the infectiousness and communicability of the disease, sources and dissemination of the bacilli, the *de novo* origin of the disease are discussed at length among the causative factors.

Part II is devoted to the consideration of the prevention of the disease, which is named as a special object of the book, being a public question which involves the eventual stamping out altogether, practically, of this most destructive of all diseases. This portion of the book should appeal, not only to the physician, but to every intelligent victim of the dread disease, and for this reason we believe it will be accepted as a book of instruction for our families in which consumption has already found its victim, or in which there is a marked predisposition to the disease.

A few pages are devoted to the climate and prevention, the book closing with a short chapter on a few general principles relating to the treatment.

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SATURDAY, MAY 9, 1896.

ANTHROPOLOGY AS A BRANCH OF MEDICAL EDUCATION.

Anthropology, as comprehensively defined by BROCA, is the science of man. Taken in its widest sense, it comprises not only anatomy, physiology, pathology, psychology, and the other studies usually included at the present day in the medical curriculum, but also archeology, ethnology, biology and allied subordinate sciences, that investigate man as an individual and in the aggregate, both specifically and in his relations to surrounding natural objects.

The study of man can not be separated from zoölogy, the science of all animal life, or of biology, which studies the functions of living beings, without giving rise to narrow, one-sided, and erroneous views. The study of the manifestations of intelligence in the lower animals, and the results attained by comparative anatomy and therapeutics, have thrown much light upon some of the most difficult problems in human pathology and clinical medicine. Pharmacology, indeed, may be said to lay its claims to recognition as a science principally upon physiologic investigations on the lower animals and upon practical deductions from results in the field of comparative medicine.

In a restricted and metaphysical sense, anthropology has been applied to the study of man in his relations to the Deity; but in the present consideration the term will be used only in its accepted scientific meaning, in accordance with the definition given above. Anthropology, in the first place, assigns man to his proper position in the scale of living beings, where he stands "the paragon of animals." It is true that structurally he can not be considered the peer of some of the inferior animals. He has not the physical strength of the gorilla, the rapid pace of the greyhound, the swimming power of the seal, the flying power of the bird or bat. His special senses are less keen, there are many animals which have superior acuteness of hearing, of sight or of tactile sense. His vitality, the ability to resist disease, to endure fatigue and hardship, are manifestly inferior to animals generally, speaking of them as they exist in their natural state. It is solely the extraordinary and excessive development of the cerebral hemispheres, especially in the anterior lobes, that places man in his elevated position in the scale of creation and separates him widely even from the most highly developed ape. There is also a manifest difference in the quality of the gray matter, as well as in the quantity, which of itself separates man from the anthropoid simians as from all other inferior animals, and to which due consideration should be given in discussing man's affinities and specific traits, and his claims to classification apart from inferior animals.

The question whether there was originally only one race of man or whether there were distinct types of mankind from the beginning, can be discussed more temperately at the present time than it could be at the period when NOTT and GLIDDON wrote on "The Types of Mankind." Human slavery and the social problems arising from it, no longer invade our halls of science and disturb the philosophic calmness of debate. At present the weight of authority seems to be in favor of the theory of unity of origin. This is really in accord with the statement made by DARWIN himself, who says: "When naturalists observe a close agreement in numerous small habits, tastes and dispositions, between two or more domestic races, or between nearly allied natural forms, they use the fact as an argument that all are descended from a common progenitor, who was thus endowed; and consequently, that all should be classed under the same species. The same argument may be applied with much force to the races of man." This argument from analogy has considerable weight, and, at all events, encounters less opposition than it did a generation ago under different economic conditions.

Some three years ago, PROF. DANIEL G. BRINTON of Philadelphia, wrote a pamphlet on "Anthropology as a Science and as a Branch of the University Education" in which he made a strong appeal for the recognition of the claims of this science as a branch of instruction in our colleges. It would seem as if his arguments could be applied to our great medical schools with even more force than to the secular institutions. It would be a great gain to medical education if anthropology should be commenced in the preparatory course and concluded in a post-graduate course, after having been followed for the whole period of undergraduate study. In this way a systematic, comprehensive and consistent course could

be followed, which could be continued to any desired extent by those who felt themselves especially attracted to this science.

The first school of anthropology, according to DR. BRINTON, was founded by BROCA at Paris in the year 1876. This institution, beginning with five professors, now has ten, the demand for more extended instruction having steadingly increased from its inception. It has very close relations to the medical course and the majority of its students are also students of medicine. A second school is now in operation in the same city, in connection with the Museum of Natural History at the Jardin des Plantes. A school has recently opened in Italy known as the Faculty of Anthropology in the University of Rome, under the special charge of PROFESSOR SERGI. There are departments of anthropology in the Universities of Munich, Berlin, Marburg and Buda-Pesth, and instruction is likewise given in this branch at Leipzig and a number of the other chief educational institutions of Europe. The University of Brussels has established a full chair of anthropology and a similar position exists in the Musée Polytechnique at Moscow. In the United States, regular courses on physical anthropology and ethnology have been given by DR. BRINTON, at the Academy of Natural Sciences in Philadephia, since 1886. The University of Chicago and Clark University at Worcester, Mass., had also given instruction upon this subject, and Harvard University for many years has taught ethnology and allied branches, but up to 1892 no full professorship of anthropology has been established by any educational institution in this country. Since DR. BRINTON wrote, the University of Chicago has established a titular chair and will shortly commence systematic instruction in this department. Last year the University of Pennsylvania appointed DR. BRINTON to a newly created position in the Faculty, Professor of American Archeology and Linguistics, in recognition of his services to this particular branch of science.

The method submitted by DR. BRINTON, as the best one to be pursued by teachers of anthropology, is the subdivision of the study into four associated departments of nearly equal importance:

Somatology.—This studies the physical nature of man, his anatomy, physiology, and biology, so far as these bear on the distinctness of races, peoples and nations. Psychology, so far as it is an experimental and inductive science, belongs to this department.

Ethnology.—This is in its methods, historic and analytic. It contemplates man as a social creature. It is more concerned with the mental, the psychic part of man, than with his physical nature, and seeks to trace the intellectual development of communities by studying the growth of government, laws, arts, languages, religions and society.

Ethnography.—This is geographic and descriptive in its plans of research. It studies the subdivisions and migrations of races, local traits, peculiarities, and customs; and confines itself to matters of present observation.

Archeology.—This comes in to supply the material, which neither history nor present observation can furnish. It pries into the obscurity of the remotest times and periods of man's life on earth and gathers thousands of facts, forgotten by historians and overlooked by contemporaries. Often these unconsidered trifles prove to be of peculiar value and furnish the key to the real life of ancient nations.

Necessary adjuncts to the systematic study of anthropology are properly equipped laboratories for practical observation and original investigation. Library labor consisting in courses of reading in the literature of the science, should also form a part of the assigned tasks of the student in this department.

Such a course of study as here outlined would prove especially attractive to those physicians, who take a broad and comprehensive view of the problems of disease from the biologic standpoint.

THE MONEY-COST OF A TYPHOID FEVER EPIDEMIC.

DR. CAMPBELL MUNRO, Medical Officer of Health for Renfrewshire, in his annual report for 1894 takes up the question of the pecuniary loss that follows a prevalence of infectious diseases. The epidemic of typhoid fever in Mid-Renfrewshire in 1893, caused 74 deaths out of 859 cases. As a first item in the bill of expenses, DR. MUNRO estimates that through loss of wages the community lost over $16,000. The loss through the cost of the treatment of patients is placed at an average of $25; DR. MUNRO has found that the average cost of a patient treated at the hospital was not less than $40. On this basis the epidemic caused an expenditure of $21,000 in treatment. The cost of funeral expenses is estimated at $1,850, thus making for the three items of loss above enumerated, a total of $37,850. The next item to be considered, the money-value of the lost lives, he calculates as follows:

"A quotation from the writings of FARR, the greatest authority on the subject, will best illustrate the position of the matter: 'As lands, houses, railways and the other categories in the income-tax schedules are of value, because they yield annual returns, so for the same reason, and on the same principle, the income of the population derived from pay of every kind, for professional or other services, and wages, can be capitalized; not precisely, it is true, unless the income of every person living were returned at least as nearly as incomes subject to income-tax; but sufficiently near to the true value to show that the value of the population itself is the most important factor in the wealth of the country. . . . The capitalization of personal incomes proceeds upon the determination of the present value, at any age, of the *future annual earnings* at that and all future ages.' The value to the community of an individual member is ascertained by deducting the capitalized future cost of subsistence of the individual from his cap-

italized future income. Proceeding upon these lines, FARR arrived at the conclusion that the 'minimum value of the population of the United Kingdom—men, women *and children*—is about $800 a head; that is, the value inherent in them as a productive, money-earning race.' He estimated the value of the population of the United Kingdom, at the time he was writing, as equivalent to a capital sum of $26,250,000,000, while the 'capital' of the country (using the term in its ordinary sense) amounted, according to MR. GIFFEN'S estimate, to $42,000,000,000.

"Adopting FARR'S figures as a basis for the calculation, I have made a rough estimate of the value 'inherent in' the persons who died in the course of this epidemic 'as a productive, money-earning race.' I find that it amounts to the very large sum of $68,000 (nearly). So that the pecuniary loss to the community of Mid-Renfrewshire, arising in connection with the epidemic, amounts to the enormous total of $105,000. A consideration of these figures may well suggest the reflection whether any investment is calculated to yield a better pecuniary return than the expenditure involved in the operations of the Public Health Department, which have for their main object the prevention of epidemics."

MISCHIEF-MAKING JOURNALISM.

In the same issue of our more or less esteemed contemporary, the New York *Medical Record*, in which it affected editorial ignorance of the AMERICAN MEDICAL ASSOCIATION, asking "What is it?" and in the same column is published a statement—"No Pay, No Work"—to the effect that "it has been decided by the Supreme Court of Illinois that the health authorities have no right to require physicians to report contagious diseases or births without pay," and, upon this obviously absurd proposition, proceeded to discuss the nice question: "Whether the physician, whose aim is the prevention as well as the cure of disease, is not morally bound to warn the community of danger when this can be done at a not unreasonable expenditure of time and labor," etc.—*more Bunsbii*.

The proposition was obviously absurd because, at least so far as Illinois is concerned—and the same is true generally of other States—the requirement is a statutory one and not, except in an executive way, a requirement of the health authorities. Nevertheless, and notwithstanding this absurdity, inquiry was at once made of the clerks of the three divisions, and of the official reporter, of the Illinois Supreme Court. The HON. ISAAC N. PHILLIPS, Official Reporter, replies: "No such decision by the Supreme Court of Illinois as that referred to in your letter of the 24th inst. has come to my knowledge." The clerks of the different divisions also assert that no such decision has been filed with them and that they "never heard of it before."

At this stage the JOURNAL had intended to ignore the matter, not anticipating that the statement would be accepted seriously elsewhere. But the current (May) number of the Cleveland *Journal of Medicine* shows what mischief the unfounded publication of the *Record* may work if still uncorrected. The Cleveland *Journal* says:

"An interesting fact apropos of the present discussion by the City Council [Cleveland] of a new health ordinance providing more stringently for the reporting of contagious diseases by physicians is noted in the *Medical Record* of February 22. [April 18]. The Supreme Court of Illinois has just decided that physicians can not be compelled to report on contagious diseases or to render any other public service without pay. This is the more remarkable because in many States there are valid laws compelling physicians to report births and deaths. It must be a peculiarity of Illinois law."

Our Cleveland contemporary is respectfully advised that this "peculiarity of Illinois law" need not embarrass the attempt to secure the new health ordinance in that city; that the "peculiarity" is only a figment of the *Record's* imagination; and that it will do well in the future to look to the carefully edited columns of this JOURNAL for authentic information rather than to the pages of a periodical whose insular prejudices recently betrayed it into making a boast of its ignorance concerning the representative medical organization of the whole country.

The *Record's* minor statement, to-wit: "That there is or was in existence in Connecticut a plan 'whereby the physician would receive twenty-five cents for each notification of a case of infectious disease or a birth,'" is thus contradicted by the veteran sanitarian and statistician, DR. C. A. LINDSLEY, Secretary of the Connecticut State Board of Health:

"Physicians have never been paid for reporting infectious diseases in this State. But they are paid twenty-five cents for each certificate of birth and death rendered to the town registrar, if rendered monthly as the law requires. The legal question of the power of the Legislature of Connecticut to authorize the enactment of ordinances requiring physicians to report infectious diseases without compensation was decided in the affirmative by the Supreme Court in 1887. See report of decision in Annual Report of Connecticut State Board of Health for 1889."

"EIGHTY PAGES IN THIS NUMBER."

Conspicuously displayed on its title page the New York *Medical Record* week by week announces the number of pages in each issue. That of last week reads "Seventy-six Pages in this Number"; that for the week before reads "Eighty Pages in this Number." The inference intended to be drawn is, of course, that these are the specified number of pages of reading matter in the respective issues. As a matter of fact, there were thirty-six pages of reading matter in each of these two numbers, and forty and forty-four pages of advertisements respectively, about one-fifth of which is advertising matter devoted to the interests of the commercial house by which the *Record* is owned. Without venturing to express an opinion on the relative merits of the two classes of matter, reading and advertising, still we can not refrain from speculating upon the mental caliber of the readers of that periodical who, as its editor evi-

dently thinks, can be gulled by such a specious pretence. The JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION is publishing nearly 40 per cent. more pages of reading matter in every issue than the *Record*—fifty pages as against thirty-six—and, owing to the size of type and page, fully twice the number of words. That the JOURNAL matter excels as much in quality as in quantity seems to be the verdict of a large and steadily increasing number of unprejudiced jurors.

THE JOURNAL TRAIN.

The JOURNAL train left Chicago at 12 o'clock on Sunday, May 3, by the "Big Four" road as advertised, in charge of MR. MCGINNIFF of that company. The weather was pleasant, the sun shone brightly, and the accommodations were excellent. Engine No. 193 pulled us into Cincinnati at 9:05 P.M., exactly on schedule time. Here we were turned over to the Queen & Crescent, and, as has been remarked by one individual, "Trouble began at this point." We had been informed, and the agreement was made accordingly, that no delay should occur; that our train should run through as a "special" from Cincinnati to Atlanta. Some of the party desired to know whether an opportunity would be allowed to take supper at Cincinnati, but as it was a "special" to run through without change, it was said not to be possible, and after waiting until 10:30 we were informed that it was not the intention to take our train out of the depot until the arrival of the Detroit "Medicine" train, under the charge of DR. MOYER, of Chicago, and DR. WHITMORE, of P. D. & Co. Their party consisted of about thirty-three people, who started over the "Monon" Route, but meeting with an accident were delayed somewhere in Indiana, and our party was compelled to wait for them until about 11:30 P.M. At that hour, becoming restless and impatient, and on representations made to the trainmaster in Cincinnati, the alleged superintendent of the Queen & Crescent Road, a certain MR. STEPHENS, was brought down to interview the passengers, and notwithstanding the desire of the party to proceed on their journey, he flatly refused to accommodate them in any particular. Not only that, upon representations having been made to him that the train should proceed, which by this time was composed of some of the most distinguished physicians of the Northwest and their families, he announced that the cars belonged to them, and that he would move them out of the depot when he got ready, or words to that effect. Arguments, persuasion and entreaties were of no avail to the all-powerful MR. STEPHENS, who finally becoming tired of the importunities, sent the train across the river to Ludlow, Ky., where they completed the allotted period of the detention and were finally joined by the delayed contingent as aforesaid. From this time forward the train made an excellent run. We arrived in Chattanooga at 10:30 A.M., very tired, considerably disgusted and very hungry. We had a fair breakfast at Chattanooga, which tasted all the better, as some of our party had eaten nothing for twenty-four hours, thanks to the inhumanity of MR. STEPHENS. From Chattanooga we made a splendid run over the Southern Railway. The officers of that company made every effort to make the trip pleasant and speedy. We arrived in Atlanta at 3:30 P.M., where some of the JOURNAL party found the rooms which they had engaged at the Aragon Hotel already assigned to others. The originators of the trouble, including the alleged STEPHENS, were not extremely popular with any of the members of the JOURNAL party.

A number of physicians on the train made up their minds that they had learned something in the matter of travel over certain railroads, and that when it came to advising patients going South for the winter what line to take in order to have the most comfort and humane attention, they would know how to advise them. A more unfeeling and heartless treatment of passengers has seldom been witnessed than that received at the hands of MR. STEPHENS, of the Queen & Crescent.

The following is the list of passengers:

JOURNAL TRAIN LIST.

Dr. Wm. L. Allen, Davenport, Iowa; Dr. C. Abaly, Madison, Wis.; Dr. Jas. P. Boyd, Akron, Ohio; Dr. C. B. Burr, Flint, Mich.; Dr. John R. Brown, Indianapolis, Ind.; Dr. L. C. Cline, Indianapolis, Ind.; Dr. A. C. Cotton, Chicago, Ill.; Dr. D. W. Graham and wife, Chicago, Ill.; Dr. John B. Hamilton and wife, Chicago, Ill.; Mr. Wm. Whitford, Chicago, Ill.; Dr. D. B. Collins, Madison, Wis.; Dr. and Mrs. P. V. Carlin, Denver, Colo.; Dr. R. Beverly Cole, San Francisco, Cal.; Dr. D. H. Cunningham; Dr. Henry Day, Eau Claire, Wis.; Dr. W. B. Hill; Dr. Jos. Eastman and daughter, Indianapolis, Ind.; Dr. W. Eastman, Mineral Point, Wis.; Dr. H. Bert Ellis, California; Dr. and Mrs. D. S. Fairchild, Clinton, Iowa; Dr. L. M. Gregory, Stevens Point, Wis.; Dr. Alonzo Garcelon, Lewiston, Me.; Dr. J. B. Barber, Dunkirk, Ind.; Dr. T. C. Hood, Dana, Ind.; Dr. and Mrs. C. M. Hobby, Iowa City, Iowa: Dr. C. H. Hughes, St. Louis, Mo.; Dr. W. B. Hill, Milwaukee, Wis.; Dr. A. F. Jonas, Omaha, Neb.; Dr. Geo. F. Jenkins and wife, Keokuk, Iowa; Dr. J. V. R. Lyman, Eau Claire, Wis.; Dr. A. S. Lawbaugh, Opeckee, Mich.; Dr. I. N. Love, St. Louis, Mo.; Dr. Chas. McAllister, Iowa; Dr. W. D. Middleton, Davenport, Iowa; Dr. Donald Maclean and wife, Detroit, Mich.; Dr. E. E. Montgomery and wife, Philadelphia, Pa.; Dr. K. D. Mellier, St. Louis, Mo.; Dr. James T. Priestley, Des Moines, Iowa; Dr. Paul Paquin, St. Louis, Mo.; Dr. J. H. Ross, Kokomo, Ind.; Dr. G. William Reynolds and son, Chicago; Dr. E. R. Smith, Toledo, Ohio; Dr. N. Senn, Chicago; Mr. Enno Sander, St. Louis, Mo.; Dr. X. C. Scott, Cleveland, Ohio; Dr. G. W. Sloan, Indianapolis, Ind.; Dr. J. C. Shrader, Iowa City, Iowa; Dr. J. C. F. Thorne, Kokomo, Ind.; Dr. D. J. Townsend, Lehrville, Iowa; Dr. H. D. Thomason, Albion, Mich.; Dr. Fenton B. Turck, Chicago; Dr. Chas. True, Kankakee, Ill.; Mr. Chas. Truax, Chicago; Mrs. M. Watson Thornbury, Redfield, Iowa; Dr. B. F. Uran, Kankakee, Ill.; Dr. Lyman Ware, Chicago; Dr. G. V. Woolen, Indianapolis, Ind.; Dr. J. A. Work, Elkhart, Ind.; Dr. D. C. Wilson, Ironton, Ohio; Mrs. D. C. Wilson, Ironton, Ohio; Miss. V. M. Wilson,

Ironton, Ohio; Dr. P. A. Walling, Park Rapids, Minn.; Dr. J. E. Woodbridge, Cleveland, Ohio; Dr. B. M. Walrath, St. Paul, Minn.; Dr. Geo. W. Webster, Chicago; Dr. A. L. Wright, Carroll, Iowa; Dr. Wm. J. Younger, San Francisco; Dr. Henry B. Young and wife, Burlington, Iowa.

ELECTION OF OFFICERS.

As we go to press we learn by telegraph of the election of PROF. NICHOLAS SENN, of Chicago, to the Presidency of the Association for the ensuing year; GEN. GEO. M. STERNBERG, U. S. A., has been elected Vice-President. Members of the Board of Trustees: DR. E. E. MONTGOMERY, Philadelphia (reëlected); DR. JOSEPH M. MATHEWS, Louisville; DR. C. A. L. REED, Cincinnati; and DR. G. C. SAVAGE, of Nashville, to fill the vacancy caused by the death of DR. JAMES E. REEVES.

The annual addresses will be delivered by DR. AUSTIN FLINT, of New York, on General Medicine; DR. WM. W. KEEN, of Pennsylvania, on General Surgery, and DR. JEROME COCHRANE, of Alabama, on State Medicine.

The next annual meeting will be held in Philadelphia, the birthplace of the ASSOCIATION.

CORRESPONDENCE.

Dr. Reuben D. Mussey.

WILMORE, PA., April 29, 1896.

To the Editor:—I beg the privilege of thanking Dr. Hamilton, through the JOURNAL, for his article on the life of Dr. Mussey. I know of no doctor in the past, or present time, of whom I was so truly glad to learn, of his life and character, as that of Dr. Mussey.

Within the last few months, through the kindness of Dr. Parsons of Portsmouth, N. H., I learned of the life of Dr. Mussey, before his coming to Ohio, as given before the New Hampshire Medical Society, at its one hundredth anniversary, and now I have the excellent article, by Dr. Hamilton, with a good picture of Dr. Mussey; his autograph I have had for a long time, as found attached to my father's diploma, given to him at Dartsmouth Medical College in 1835—Dr. Mussey was lecturing on anatomy, surgery and obstetrics at that time.

My father, Dr. Cyrus Blaisdell, who died when I was some six years of age, was a favorite student of Dr. Mussey, it would seem, who after receiving a thorough training in anatomy and surgery under Dr. Moses Sweat of Maine graduated at Dartsmouth, remaining after that six months as a private student with Dr. Mussey, where he had the benefit of his teaching and friendship. Dr. Sweat at that time was one, if not the best, of the country doctors in the State of Maine, he having had the assistance for years of Dr. Alexander Ramsey of Edinburgh, Scotland, he having lectured in that city before coming to America. Sweat when an old man, past eighty, said Dr. Blaisdell was the best read student that he had ever had under his care.

In looking over files of letters, in the old leather trunk that did service for two generations of students, at Dartsmouth and Brunswick colleges, I find a number of letters, written by Dr. Mussey, one also by Dr. Alcot of Boston, to my father saying that Dr. Mussey had referred him to Dr. Blaisdell for help, on a book he was then preparing on Vegetable Diet.

The letters show him, Dr. Mussey, to be so much like the character given him by Dr. Hamilton, that I can plainly see how true the article is, as written by Dr. Hamilton; the letters show that he did not regard the practice of medicine the only duties of a doctor, but that there were moral and social duties that were required at his hands, and the letters show how ready he was to give credit for moral and religious worth, as found in his students, and to help them, as he best could by showing their good points to advantage, by calling the attention of those, who were able to judge best in these matters: he must have been a big hearted man, one whose conflict with life had not made him hard or selfish. I find among other papers, a part of a temperance lecture, which must have been delivered shortly after my father had left the medical school; it was about the time Neil Dow was beginning his temperance work in Maine, some sixty years ago. The lecture met with much favor, it would appear, in the rather scholarly town in which he had located. I was surprised, to see how fearless as a young doctor, he handled his subject, neither having fear of foe, or quoting favors, showing plainly the action of alcohol in its various forms on the human system, and its moral and political influence throughout the broad land of ours. It appears to me, although some sixty years have gone by, that he handled his subject with as much skill and force as those of this later day, and now I can see how fully he was prepared to battle with that great evil of all times, intemperance, by having the example and teaching of that great and religious man, Dr. Mussey, who labored so faithfully for the moral good of his students.

How much pleasure it no doubt would have afforded Dr. Mussey, could he have then known in life, that in years long after, when life's work was over, he should be so well remembered, as he is in the article given us by Dr. Hamilton, and it does seem good in these times of rush and push, on and on, when one is forgotten ere he is hardly gone, that one yet finds some, like Dr. Hamilton, who appreciate moral worth, and are willing to bring it before those who are about coming on to the field of action in life, and to whom it will be an incentive to do right, because it is right, without fear or favor.

Very truly, IRVING C. BLAISDELL, M.D.

It may be One of Those Letters.

GROVELAND, MASS., April 29, 1896.

To the Editor:—I am surprised to find that the medical journal which professes to lead medical journalism in this country, has space to print this attempted slur at the AMERICAN MEDICAL ASSOCIATION. The question—"The AMERICAN MEDICAL ASSOCIATION, what is it?" reminds me of an experience we had in the good old city of Boston not long ago.

Among the heroes of the Civil War was Col. Robert G. Shaw, whose gallantry men who wore the blue or the gray were equally glad to honor. As a slight tribute to his worth, it was proposed to erect a statue to his memory, and the matter came up for discussion in the council. One of the rulers of modern Boston, an Irishman who, I presume, had not been very long in this country, arose and asked, "Who was Col. Robt. G. Shaw, anyhow?"

The AMERICAN MEDICAL ASSOCIATION, for some reason or other which I am not able to understand, has some very bitter enemies, and more the pity of it, among the medical profession of this country.

I greatly regret that I can not be present at the meeting in Atlanta. It would do me good just to look at the manly men, members of the medical profession from all sections of this great and growing country, who expend large sums of money, often denying themselves, to do honor to the ASSOCIATION. So in answer to the question, "The AMERICAN MEDICAL ASSOCIATION, what is it?" I would say for the benefit of those who do not know, that it is an association composed of medical gentlemen from every State and Territory of this Union, who meet for the benefit of medical science to learn how to control disease and be of service to their fellow men. The ASSOCIATION publishes

a journal which in every respect is a credit to American medical genius.

I remember that the editor of the *Record* once said to me that when he had a subject to discuss he would write a letter purporting to come from a hayseed in some way-back town, and then answer it. Perhaps this may be one of those letters.

With best wishes for the success of the AMERICAN MEDICAL ASSOCIATION and of its meeting in Atlanta, together with my sincere appreciation for the able manner in which our JOURNAL is managed and edited, I am, Very sincerely yours,

W. T. PARKER, M.D.

Recurrent Scarlatina.

MONTPELIER, OHIO, April 29, 1896.

To the Editor:—The following is to me a unique case, and may prove so to many of the brethren. I therefore desire to report it. Was called some time in January of this year to see a boy 10 years of age, suffering from well defined scarlatina. It ran the usual course, desquamation being complete even to the finger and toe nails. Four weeks ago, being the last of March, saw him again, having scarlatina; case pursued usual course, desquamation as before. He had been up and around about a week, when a third attack seized him; desquamation is at the present time going on. The exfoliation is so complete and followed so soon after the second attack, that patient is rendered extremely sensitive, in some situations blood oozing through the skin.

Five years ago, according to the parents, the boy had an attack of scarlatina and was treated by a competent physician. This makes four attacks in the same person, the last three happening within four months. I should like to know if any of the brethren have similar experiences, or whether this case is particularly unique? Truly yours,

H. M. BYALL, M.D.

To the Members of the Medical Profession.

PHILADELPHIA, PA., May 1, 1896.

My two collective reports which are already published on Ice-cold Applications in Acute Pneumonia give a record of one hundred and ninety-five cases so treated, with seven deaths, or a mortality rate of 3.58 per cent.

Being desirous of making as full a report as possible on this subject, I take the liberty of asking those who have tested this measure to kindly give me the result of their experience. Full credit will be given to each correspondent in the report which I hope to publish. Blanks for the report of cases will be furnished by me on application. THOMAS J. MAYS, M.D.

1829 Spruce Street.

Southern Baptist Excursion.

BROOKLYN, N. Y., April 29, 1896.

To the Editor:—I cut the enclosed slip from the *Watchman*:

The Southern Baptist Excursion: The Seaboard Air Line will run a personally conducted excursion to Chattanooga, Tenn., for the Southern Baptist Convention to be held in that city May 8 to 14 inclusive. Solid vestibuled train. One fare for the round trip. For particulars address J. Strang, New England Passenger Agent, Seaboard Air Line, 306 Washington Street, Boston.

One would think that the railroad corporations could be, and would wish to be, as liberal to those who care for the physical as for the spiritual welfare of their patrons. I know the JOURNAL is laboring in that direction. This requires no personal reply. Yours truly, N. W. LEIGHTON, M.D.

SOCIETY NEWS.

Medico-Legal Society of New York.—At a meeting of this society held at the Marborough Hotel, April 15, among the scientific papers read, was one on the Röntgen rays in medico-legal surgery, by J. M. Bleyer, M.D.

The "Western Association of Eye, Ear, Throat and Nose Surgeons" was organized at Kansas City, Mo., April 10. Seventy-five surgeons were in attendance. Adolf Alt, of St. Louis, was elected president.

The Tennessee State Medical Society held its sixty-third annual meeting at Chattanooga, Tenn., April 14. President, G. C. Savage, M.D., Nashville. The delegates were welcomed on behalf of the citizens by Mayor Ochs, and by Dr. G. A. Baxter on behalf of the local members of the profession. Among the members who have been longest connected with the association appear the names of Dr. J. B. Lindsley, Nashville, who entered the society in 1845; Dr. T. Briggs and Dr. Thomas J. Maddin, in 1853.

Mississippi State Medical Association.—The twenty-ninth annul meeting of this association convened at Vicksburg, Miss., April 16; President, Dr. R. H. Haralson, of Forrest City. Hon. Murray F. Smith welcomed the association to the city. Dr. T. P. Lockwood, of Crystal Springs, in his response advocated the establishment of a medical department of the University of Mississippi and the erection of a college and hospital. President Haralson and others urged the necessity of such a department.

The Iowa State Medical Society, Dr. David S. Fairchild, of Clinton, President, held its forty-ninth annual session at Des Moines, Iowa, April 16, 17 and 18. The address of welcome was delivered by Hon. Sidney A. Foster, of Des Moines, to which J. M. Emmert, M.D., responded. Many papers on medicine, surgery, hygiene, etc., were presented. The session was well attended and much interest evinced. The officers elected for the ensuing year were: President, E. L. Baker, M.D., Indianola; Secretary, J. W. Cockenower, M.D., Des Moines; Assistant Secretary, C. C. Tuttle, M.D.; Treasurer, Geo. B. Skinner, M.D., Cedar Rapids. The next meeting of the society will be held at Marshalltown, Iowa.

District of Columbia Medical Asssociation.—At the regular meeting of the Medical Association of the District of Columbia held April 7, the following officers for the ensuing year were elected: President, Dr. W. P. Carr; Vice-Presidents, Drs. Hawkes and Scott; Secretary, Dr. J. R Wellington; Treasurer, Dr. H. M. Deetle; Counselors, Drs. Cook, McLain, Ober, Holden, Acker, Kober, T. R. Stone, Yarnell and D. O. Leech; Censors, Drs. Woodward, Ruffin and Mayfield; delegates to the meeting of the AMERICAN MEDICAL ASSOCIATION to be held in Atlanta, Ga., May 5, 6, 7, and 8, 1896, Drs. J. T. Johnson, Kleinschmidt, Belt, Sothoron, Heiberger, Franzoni, L. Eliot Rich, Woodward, Nordhoff, I. S. Stone, S. Muncaster, Magruder, Acker, Kober, Bowen, Nash, Wellington, C. G. Stone, Cook, Fry, Morgan, W. W. Johnston, Van Rensselaer, Busey, F. Leech, J. F. Thompson, S. S. Adams, Lincoln, Hunt, McLaughlin, J. D. Morgan, Mayfield, Peter, Suter and Carr.

Medical Association of the District of Columbia.—At a special meeting of the Association held on the 23d ult. the following was adopted:

WHEREAS, There is now pending in both Houses of the Congress of the United States, a bill entitled "A bill for the further prevention of cruelty to animals," which, if enacted into a law will prohibit vivisection or animal experimentation in the District of Columbia, and effectively close the biological laboratories connected with the Surgeon-General's Department of the United States Army, Bureau of Animal Industry of the Department of Agriculture, and Marine-Hospital Service, and prohibit all illustrative experimentation on living animals in the medical colleges of this District; and

WHEREAS, The proposed legislation is being urged with unremitting zeal and persistence by the humane societies and their coadjutors throughout the country, by personal solicitations of Senators and Representatives, by letters and petitions setting forth charges of cruel and atrocious tortures upon dumb animals committed by investigators and experimenters in medical and biologic research, and by misrepresentation and perversion of facts established by biologic and experimental

investigation, to which the science of medicine owes its present stage of advanced progress and wider scope of beneficence; and

WHEREAS, It is not known to this association, or to any member thereof, that such alleged abuses and cruelties are being, or have been, perpetrated in any of the biologic or medical college laboratories in this District, and it is assured by those in charge of such laboratories that such charges are without foundation; and

WHEREAS, The medical profession throughout the country does not seem to realize the significance and importance of such proposed legislation, which, in its direct operation, will be limited to the District of Columbia, but in its indirect effects will add impetus and force to this crusade against the scientific progress of medicine in general, this association appeals to the AMERICAN MEDICAL ASSOCIATION for such expression of the concensus of medical opinion on the subject as it may in its wisdom see fit to promulgate; therefore, be it

Resolved, That the delegates of this association to the meeting of the AMERICAN MEDICAL ASSOCIATION, at Atlanta, Ga., be instructed to present this memorial to that ASSOCIATION and ask a prompt and favorable consideration; secondly,

Resolved, That a copy of this memorial be sent to the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, with the request that it be published in the next ensuing issue of that JOURNAL.

W. P. CARR, M.D., President. J. R. WELLINGTON, M.D. Secretary.

The American Orthopedic Association.—Preliminary program of the tenth annual meeting to be held at Buffalo, May 19, 20 and 21, 1896:

The President's Address. Royal Whitman, New York.

Some practical points in the treatment of Lateral Curvature of the Spine. A. B. Judson, New York.

Some Etiological factors in Lateral Curvature of the Spine. E. G. Brackett, Boston.

Cases illustrating the absurdity of treating ordinary Lateral Curvature (Scoliosis), by Spinal Supports. Bernard Roth, F.R.C.S., London.

The rationale of Gymnastic Exercise and Pressure Correction in the treatment of Scoliosis. L. A. Weigel, Rochester.

The rapid cure of Rotary Lateral Curvature of the Spine and other postural deformities by means of thorough development, and corrective exercises with heavy weights. With a demonstration of the method. (By invitation). Jacob Teschner, New York.

A simple and efficient brace for Lateral Curvature. S. L. McCurdy, Pittsburg.

Congenital Misplacement of the Femur anteriorly. DeForest Willard, Philadelphia.

Further remarks on Congenital Dislocation of the Hip. Bernard E. Brodhurst, F.R.C.S., London.

Report of a case of double Congenital Dislocation of the Hip, treated by the Lorenz method of operation. Reginald H. Sayre, New York.

The Cure of Congenital Dislocation of the Hip by means of the "functional weighing" method, without open operation. Adolf Lorenz, Vienna.

Spontaneous Dislocation of the Hip. William J. Taylor, Philadelphia.

The treatment of Club-foot: (*a*) When to commence treatment and how. (*b*) The indications for mechanical treatment. (*c*) The limitations of mechanical treatment. (*d*) The indications for operative treatment. (*e*) Results in 343 operations performed by the writer. A. M. Phelps, New York.

Investigations on Flat-foot. E. H. Bradford, Boston.

Mechanical Support for Flat-foot. John C. Schapps, Brooklyn.

The Anterior Transverse Arch of the Foot. Joel E. Goldthwait, Boston.

Injuries of the Tarsus and the Ankle Joint. J. D. Griffith, Kansas City.

Subtendinous Exostosis. E. G. Brackett, Boston.

The mechanical treatment of Ingrown Toe Nail. Henry Ling Taylor, New York.

The operative treatment of Paralytic Deformities of the Foot with particular reference to Arthrodesis. V. P. Gibney, New York.

Some mechanical problems in the treatment of Pott's disease. John C. Schapps, Brooklyn.

The operative treatment of threatening abscesses in the high dorsal region. E. H. Bradford, Boston.

The treatment of Pott's Paraplegia with a report of two cases. LeRoy W. Hubbard, New York.

Osteomyelitis of the Spine. T. Halsted Myers, New York.

Suppuration in Joint and Spinal disease and its relation to Tubercular Meningitis. An Analytic study. Samuel Ketch, New York.

A study of the action of Iodoform Glycerin in tubercular osteomyelitis. Harry M. Sherman, San Francisco.

Joint disease in Infancy. Augustus Thorndyke, Boston.

The use of Dry Heat of high temperature in the treatment of Chronic Joint Affections. William E. Wirt, Cleveland.

A theory of the Ultimate Etiology of Deformity and its practical application. Royal Whitman, New York.

The probable cause of the limp in the first and second stage of Hip Joint Disease. Harry M. Sherman, San Francisco.

Femoral Osteotomy for correction of hip deformity in adults, with a report of cases. (By invitation). A. R. Shands, Washington.

A report of cases of Osteosarcoma of the Hip. Arthur J. Gillette, St. Paul.

Division of the hamstring tendons by the open method for correcting malposition and securing rest in Tubercular Disease of the knee. Bernard Bartow, Buffalo.

Tuberculosis of the wrist and carpus. James E. Moore, Minneapolis.

Symptoms and treatment of Slight Knock Knee in children. Robert W. Lovett, Boston.

Two cases of Dislocation of the Patella treated by operation. Joel E. Goldthwait, Boston.

Some notes on Spastic Paralysis in children. F. S. Coolidge, Chicago.

Some recent modifications in the treatment of Congenital Wry Neck. William Adams, F.R.C.S., London.

Contracted Fingers. Arthur J. Gillette, St. Paul.

Congenital Club Hand, the report of a case treated by operation. (By invitation). C. Thomson, Scranton.

Rare cases from Practice. A. J. Steele, St. Louis.

A report of some cases of unusual Congenital Deformities. John Ridlon, Chicago.

Congenital defects of the long bones, a report of cases and operations. B. E. McKenzie, Toronto.

Deformities of the Humerus due to Rickets. Augustus Thorndyke, Boston.

A report of a Family of Anomalies. S. L. McCurdy, Pittsburg.

Readers will please prepare abstracts of their papers, in order that the proceedings of the meeting may be satisfactorily reported.

JOHN RIDLON, M.D., Secretary,
103 State Street, Chicago.

ROYAL WHITMAN, M.D., President,
126 West 59th Street, New York.

PUBLIC HEALTH.

The New York State Board of Health bulletin for month of February gives total deaths in the State 9,825 as against 8,789 as average for series of years for same month.

The Registration of the physicians of Hamilton County (Ohio) showed 790 who desired to practice in Cincinnati. The arrangement made by Dr. Chas. A. L. Reed, whereby registration was made at his office, met with hearty approval and merited the thanks of the profession, for by his action they were saved the trouble and expense of either sending their diplomas and affidavits to Columbus or making the trip in person. Dr. Frank Winders, the secretary of the Board, spent the three days in Cincinnati, and Dr. N. R. Coleman came down for two days to give any desired information. He made important rulings in several questions, among which were, as to whether the internes of hospitals, and physicians from outside the State who held college clinics here, were compelled to register. Both these he decided in the affirmative.

Ignorance of Adulteration no Defense.—In the enactment of the Ohio statute of 1884, "to provide against the adulteration of food and drugs," the supreme court of Ohio says, in the case of State v. Kelly, Feb. 25, 1896, that it was the evident purpose of the general assembly to protect the public against the harmful consequences of the sales of adulterated foods and drugs, and, to the end that its purpose might not be defeated, to require the seller, at his peril, to know that the article which he offers for sale is not adulterated, or to demand of those from whom he purchases indemnity against the penalties that may

be imposed upon him because of their concealment of the adulteration of the articles. In a prosecution under this law, it is not a defense that the accused was ignorant of the adulteration of the article which he sold or offered for sale.

The Water-cooler on Railway Cars and Typhoid Fever.—According to the *Insurance Monitor*, the intimate relation of typhoid fever to the water tank of the railway car, was strikingly exemplified a few weeks since by the experience of the medical director of one of our principal life companies. His family had been sojourning for the summer at a popular resort. Very shortly after returning to his home, three children were simultaneously taken down with the disease. No other case had occurred among the numerous guests. The origin was investigated, and it was found that the water tanks on the train returning had been filled from a village well on the way. The fever was raging there among those who were using the water. The trifling quantity drank during the few hours of transit was sufficient to implant the germs of the disease.

Again the Oyster.—Our English cousins are very tenacious of an idea once lodged in their sensoria. They have convicted the oyster of various malefic powers, as in the causation of Asiatic cholera, typhoid fever, etc. And now whenever death follows the ingestion of the bivalve the odds are that it is in some way connected with the fatal result. Thus when Col. John T. North, the famous "Nitrate King," died suddenly a few days since, while presiding at a meeting of the nitrate companies of which he was the head, and it was learned that shortly before the meeting he had eaten a dozen oysters, what more natural than to conclude—*post hoc, propter hoc*—that the oysters had caused the death? We are seriously informed by cable that "the shells have been retained for examination." Those who have seen Col. North within the last few years will have no difficulty in believing that his sudden death was due to fatty heart rather than to his oyster luncheon *per se*, and no true American will be deterred by this untoward incident from indulging, in due season, in the *O. virginica* whatever he may think of the *O. edulis*.

Healthfulness of Buffalo.—The death rates of American cities are among the vexations of the sanitarian and the vital statistician. The total deaths may be known and recorded with substantial accuracy; but as to the population of any given city—well, one man's guess is as good as another's. In New York, for example, up to April 27, 1895, the population was "estimated" at 2,013,723, and the death rate for the week ended on that date—the total deaths reported being 885—was figured at 22.93 per annum in the weekly report of the New York Health Department. In the report for the following week this rate shot up to 25.07, while the deaths reported were 890, or only five more than for the previous week. The explanation is found in a footnote on the first page of the May 4 report: "Police census, April 15, 1895, 1,849,866"—a shrinkage of more than 7 per cent. in the "estimated" population. Similarly as to Chicago, which has been boasting of its "phenomenal healthfulness." Its alleged death rate of 15.24 per 1,000 in 1894, now turns out to be based on a population "padded" 5 per cent. by the school census people of that year; and its death rate of 15.14 for last year is based on a 2.05 per cent. increase over the "padded" school census figures of the previous year. Dr. Gram, Registrar of vital Statistics of the Buffalo Health Department, has chosen a better way. While he does not hesitate to figure out death rates on population more or less "estimated," he also gives a table of deaths reported year by year, showing an astonishing reduction in the past five years, as witness: 1891, deaths 6,001, rate 23.48; 1892, 5,697, 19.98; 1893, 5,711, 19.03; 1894, 5,280, 16.76; 1895, 4,684, 13.95. Assuming that the population has been stationary during this period, here is a falling off of nearly 22 per cent. in the actual number of deaths in five years. Dr. Gram says: "Undoubtedly the cause of this great reduction in the number of deaths is mainly due to the decrease in communicable diseases, including consumption, the percentage of deaths in these having decreased from 7.42 in 1891 to 4.04 in 1895." He somewhat ingenuously adds: "This fact [the decrease in the actual number of deaths] has undoubtedly manifested itself to most practitioners when they made a comparison between their present and past book accounts, and no small number have made investigations as to the cause." Verily, the physician who relies for his income on the demand for his services in the treatment and not the prevention of disease, has fallen on evil times. *Sanitas sanitatem, omnia sanitas!*

An Object Lesson for Antivaccinists.—The city of Gloucester, in the west of England, has for years been the center and headquarters of the antivaccination movement in that country. The authorities charged with securing vaccination have for nine years, or more, persistently and successfully resisted all efforts to compel them to do their duty. Naturally and logically, smallpox is now reaping its harvest. During the first three and a half months of the present year 1,300 cases had been notified and at last accounts fresh cases were occurring daily. The population of Gloucester is 42,000, so that during the period mentioned one out of every thirty-two or thirty-three of the inhabitants had already been attacked. In common with the general experience of all smallpox epidemics, as far as records of cases that have already occurred are available, they show amongst other things, that the heaviest percentage of mortality has been among the unvaccinated, and that where unvaccinated patients have not actually died they have suffered severely, and in a great number of cases will be permanently disfigured or blind. The vaccinated infants have escaped, whilst the unvaccinated ones have suffered heavily, and where adults who have been vaccinated, often inefficiently, in their infancy, have been attacked, the severity of the disease has been mitigated, and the attack has frequently been so mild as to be scarcely perceptible.

The *British Medical Journal*, April 25, says: "The epidemic has had a marvelous effect in promoting vaccination throughout the country, and has to a great extent counteracted during the last few weeks the mischief caused by the delay which has been allowed to occur in the issue of the report of the Royal Commission on Vaccination. The guardians of the Gloucester Union, after refusing for nine years to enforce the law, have at last, but too late, repented of their folly, and have issued notices urging parents and others to obtain the prompt vaccination of their children, as 'the only means of promptly stamping out the present epidemic of smallpox.' The result of this change of front, aided by the vigorous action of the Town Council, has been that within a few weeks upward of 25,000 vaccinations and revaccinations have been performed in a population of about 42,000. It is to be hoped that this scramble for vaccination during a panic will not result in the performance of much unprotective vaccination. At the same time, one after another of the apathetic and recalcitrant boards of guardians have resolved once more to enforce the vaccination acts, and to wait no longer for the long delayed report of the Royal Commission."

Health Reports.—The following health reports have been received in the office of the Supervising Surgeon-General Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Michigan: Bay City, Detroit, Ionia and Marine City, April 11 to 18, smallpox reported.
Kansas: Leavenworth, March 28 to April 4, 2 cases.
Louisiana: New Orleans, April 11 to 18, 37 cases, 28 deaths.
Florida: Pensacola, April 22, 1 case.

SMALLPOX—FOREIGN.

Bombay, March 17 to 24, 32 deaths.
Buda Pesth, March 25 to April 1, 2 cases.
Cairo, March 11 to 18, 1 death.

Calcutta, March 7 to 14, 6 deaths.
Callao, March 8 to 15, 5 deaths.
Cardiff, April 4 to 11, 2 cases.
Cienfuego, April 5, to 12, 2 deaths.
Dublin, April 4 to 11, 1 case.
Guayaquil, April 3 to 10, 4 deaths.
Hong Kong, March 1 to 14, 2 cases, 1 death.
Leeds, April 4 to 11, 1 case.
Madrid, April 1 to 7, 13 deaths.
Montevideo, March 14 to 21, 1 case, 1 death.
Odessa, March 28 to April 4, 11 cases.
Prague, March 28 to April 4, 5 cases.
Rio de Janeiro, March 14 to 28, 18 cases, 9 deaths.
St. Petersburg, March 21 to 28, 13 cases, 2 deaths.
Swansea, April 4 to 11, 5 cases, 1 death.
Trieste, March 28 to April 4, 1 case.
Santiago de Cuba, March 30 to April 4, 1 death.
Southampton, March 28 to April 4, 3 cases.

CHOLERA.

Bombay, March 17 to 24, 3 deaths.
Calcuta, March 7 to 14, 140 deaths.

YELLOW FEVER.

Rio de Janeiro, March 14 to 21, 638 cases, 459 deaths.
Sagua la Grande, April 4 to 11, 3 cases.
Santiago de Cuba, March 30 to April 4, 5 deaths.

ADDITIONAL REPORT RECEIVED MAY 1.

SMALLPOX—UNITED STATES.

Louisiana: New Orleans, April 18 to 25, 69 cases, 20 deaths; Shreveport, April 18 to 25, 12 cases in pest house.
Michigan: Bay City, April 18 to 25, smallpox reported; Ionia, April 18 to 25, smallpox reported.
Ohio: Dayton, April 16 to 30, 2 cases.

SMALLPOX—FOREIGN.

Acapulco, April 11 to 18, 2 cases, 2 deaths.
Birmingham, April 11 to 18, 4 cases.
Bombay, March 24 to 31, 47 deaths.
Calcutta, March 14 to 21, 3 deaths.
Cardiff, April 11 to 18, 1 case.
Genoa, April 11 to 18, 1 case.
Glasgow, April 4 to 11, 1 case.
Guayaquil, April 10 to 17, 5 deaths.
Leeds, April 11 to 18, 1 death.
London, Eng., April 4 to 11, 21 cases.
Madrid, April 7 to 14, 11 deaths.
Moscow, April 21 to 28, 1 case.
Naples, March 31 to April 13, 25 cases, 10 deaths.
Odessa, April 4 to 11, 13 cases, 4 deaths.
Paris, April 4 to 11, 1 death.
Prague, April 4 to 11, 3 cases.
St. Petersburg, April 4 to 11, 15 cases, 6 deaths.
Swansea, April 11 to 18, 11 cases.
Tuxpan, April 11 to 18, 8 deaths.
Warsaw, April 4 to 11, 3 deaths.
Alexandria, March 26 to April 1, 1 death.
Cairo, March 26 to April 1, 3 deaths.

CHOLERA—FOREIGN.

Alexandria, March 18 to 25, 1 death.
Bombay, March 24 to 31, 8 deaths.
Calcutta, March 14 to 21, 173 deaths.

BUBONIC PLAGUE.

Hong Kong, March 14 to 28, 83 deaths.

MISCELLANY.

The Iowa Public Health Association will meet at Davenport, Iowa, May 19 and 20.

A Boston merchant, who declines to have his name published, is reported to have given $100,000 to Harvard University to establish a department of comparative pathology.

Alabama Exempts Dentists from Jury Duty.—A law was passed in Alabama in 1895 providing that all practicing dentists in the State shall be exempt from jury duty.

Burden of Proof as to Insanity in Georgia.—Where insanity at the time of the commission by an adult of an indictable act is set up as a defense, the supreme court of Georgia holds, in Keener v. State, decided Dec. 13, 1895, the burden of proving the alleged insanity by a preponderance of the evidence rests upon the accused.

College Commencements.—Commencement exercises of the Maryland University School of Medicine, Baltimore, Md., were held April 16 with sixty-one graduates. Gross Medical College, Denver, Colo., graduated twenty-six new M.D.'s April 9.

Recognition of "Rush."—At a quarterly meeting of the council of the Royal College of Surgeons of England, held April 9, the President, Mr. Christopher Heath, being in the chair, it was resolved that Rush Medical College of Chicago should be added to the list of foreign institutions recognized by the Examining Board for the complete course of study required by the regulations.

Physicians Can Sell Drugs in Alabama.—A law was passed in Alabama in 1895 that all regularly graduated physicians, who have complied with the laws of the State, as they now are, entitling them to practice medicine, are also authorized to fill prescriptions of other physicians, compound medicines and poisons, and sell the same, and to carry on the business of a druggist, or a drug store, or apothecary shop.

Low Patent For Holding Artificial Teeth Invalid.—Feb. 14, 1896, the United States Circuit Court, E. D., New York, held in the case of International Tooth-Crown Co. v. Bennett, that the patent, No. 238,940, granted to James E. Low, dated March 15, 1881, for a method of permanently fixing artificial teeth to the mouth by bands around the natural teeth, in dentistry, is void, on account of prior knowledge and use.

Successful Serum Treatment of Leprosy.—*El Monitor Médico*, of Lima, March 1, reports the results of fifteen cases of leprosy treated with serum by Carrasquilla of Bogota. The disease was certainly arrested by the very first dose, and all the local symptoms gradually subsided; sensibility, appetite and cheerfulness returned, and Carrasquilla considers them practically cured.

Coal Mining Not Conducive to Malignant Disease.—According to the *British Medical Journal*, Mr. T. Law Webb, surgeon of two coal fields in Shropshire, says that books of the district registrar show that of all those whose deaths are registered as due to malignant disease during the past thirty years, only two are described as coal miners. This immuntity is thought to be owing to the fact that they work underground, and do not drink casual water.

Tracheotomy Tubes for Race-Horses.—According to the Boston *Medical and Surgical Journal*, the prevention of "roaring" in race-horses otherwise valuable, has been a desideratum of horse breeders for many years. It has been accomplished by the simple surgical operation of tracheotomy. The value of this procedure is attested by the fact that in the Selling Steeplechase at the second January meeting at Manchester, England, the horses that finished first, second and fourth, wore silver tubes in their windpipes.

A National Conference of sanitarians, including representatives from all the State boards of health, will convene in Chicago June 10, and remain in session for at least three days. C. O. Probst, M.D., Secretary of the National Board, and John W. Scott, M.D., Secretary of the Illinois State Board of Health, with Commissioner Kerr and Dr. F. W. Reilly of the Chicago health department, have completed plans for the convention. The visiting delegates will be welcomed by Governor Altgeld on behalf of the State and by Mayor Swift for the city. Every State board has been asked to submit propositions for discussion, with the result that all topics of interest in sanitary science will be presented. The program includes excursions to, and inspection of the drainage canal, the cribs and intakes of the city water supply and the stockyards.

Heraldic Devices for Medical Men.—According to the *Brooklyn Medical Journal*, the tribute of a banquet has lately been attended in honor of the veteran galvano-cauterist, Dr. Johr Byrne. Dr. Shoop, responding to a toast, said he was re-

minded of the time when the late Sir James S. Simpson, the originator of chloroform anesthesia in childbirth, had lately come into his title, and a brand new coach was nearly ready for delivery to the new knight. He was at a loss for a suitable coat-of-arms and legend to put upon the carriage, and in his dilemma he consulted a friend who was somewhat of a wag. "Why, doctor," he replied, "paint on your carriage a new-born babe, and under it place the motto: 'Does your mother know you are out?'"

"Dr. Byrne, if you are in quest of a coat-of-arms paint the form of a lovely woman and inscribe the motto above her: 'Saved as by fire.'"

A Non-committal Certificate of Death.—Dr. Nathaniel K. Whittemore of Elk River, Minn., is regarded by the *General Practitioner* as a kind of local celebrity on account of his certificate of death tendered by him in a will contest case. The certifiant was evidently willing to certify to the fact of death, but the cause of death was another matter. The certificate reads as follows: "This is to certify that Sarah Langen, supposed to be single, died on Feb. 8, 1895. I have had no memorandum stating just the cause of death, and I have had more to think about in caring for the living than thinking about the dead. I am quite certain that she is dead, and have certified to that fact at least once before. She was a patient of mine, and that ought to at least give me authority to know whereof I speak; and, possibly, that ought to be sufficient guarantee that she is dead."

Arsenical Fly-paper Used for Suicidal Purpose.—The *Medical Press and Circular* congratulates the Pharmaceutical Society of Great Britain for its energy in prosecuting unlicensed vendors of poisonous preparations, and makes note of the new departure taken in the direction of bringing actions against grocers who deal in poisonous fly-papers. A case of this description was recently heard in respect to the sale of twenty-five fly-papers, the composition of which on analysis showed an average of *eight grains of arsenic in each*. The governmental chemist for the prosecution agreed with the analysis that had been made, and he also pointed out that two grains of arsenic was a fatal dose for an adult. The only defense made was that wallpapers, posters, and various fabrics contained arsenic. But the judge declined to admit this evidence, and gave judgment for the plaintiffs, namely, £5 and costs. In regard to poisonous fly-papers, the use to which they are put for suicidal purposes has been repeatedly brought under public notice, and it is therefore highly essential that their sale should be restricted, at all events to those tradesmen whose business it is to deal in drugs.

An Itinerant Physician not Entitled to Practice.—The supreme court of Rhode Island, Feb. 11, 1896, affirmed the decision, in the case of Evans v. State Board of Health, that here was a party who was to be regarded as an itinerant doctor, within the meaning of the statute relating to the practice of medicine in that State, which provides that "nothing in this chapter shall be so construed as to authorize any itinerant doctor to register or to practice medicine in any part of this State." He was a domiciled resident of Boston, Mass., and a practicing physician, making a specialty of the treatment of catarrh. His main or regular office was in Boston, and for years past, except when absent from the country or prevented by illness, he had visited Providence in the practice of his specialty on stated days each month. He had no office in Providence except the rooms he had taken in the hotels at which he stopped. He notified his patients of his visits by advertisements in a Providence newspaper, and had met them in his rooms at the hotels at the times mentioned in the advertisements. He had also during this ten years, for greater or less periods, been in the habit of visiting, in the practice of his specialty, Worcester, Springfield, New Bedford and Lowell, Mass., in the same manner as he had visited Providence. On these facts, the court holds that the decision of the State Board of Health, as above, was correct.

Not an Expert on Determining Facts.—A physician was called as an expert witness in a murder case where the defense was insanity. He testified that he had made an examination of the defendant before the trial, with reference to his life with his wife, the beginning of his domestic trouble, their continuance, a trip West and return, his attempt to get into business, his letters that he wrote to different people, his attempt at reconciliation, etc. He was then asked to state his conclusion as to the defendant's sanity or insanity at the time of the tragedy. Feb. 25, 1896, the court of appeals of New York holds People v. Strait, that the trial court was right in refusing to allow the question to be answered. It says that the witness was an expert on the diseases of the mind, but he was not an expert on determining the facts, where such facts had to be obtained from the statements of others. It then explains that it was essential that the jury should be informed as to the facts upon which the expert based his conclusions in order to determine whether they were well founded. If the facts were not disclosed his conclusions could not be controverted. He might have been deceived by a false statement prepared for the occasion, and for the purpose of making him a valuable witness upon the trial. This, with regard to information derived by the physician from statements made by others not under oath. But a physician may acquire facts from his own observation. There is much, continues the court, in the actions, conduct and appearance of a person that aids the physician in forming a conclusion as to the difficulty. The facts so acquired the physician may himself give in evidence, at least so far as they can be described.

Acquittal of a Physician Unjustly Accused.—A practitioner of Brooklyn, Dr. Carl F. Gessler, had a narrow escape from a trap prepared for him by an admittedly guilty midwife, abortionist, in conjunction with her servant. The midwife "turned State's evidence" in the expectation of having sentence ameliorated under plea of guilty. The case was one of fatal results after alleged criminal abortion, and the practitioner testified that he had no suspicion of criminality until, after the death of the patient, the midwife ran away. The closing scenes of the trial were replete with interest, because of the number of medical experts who testified in the doctor's defense. Among them were Dr. George R. Fowler, Dr. Francis H. Stewart, Dr. George H. Jeffrey, Dr. August H. Ritter, Dr. Charles W. Brandenberg and others. All were called as experts in different lines, and in answer to the long hypothetic questions said that the patient's death was in their opinion due to exhaustion caused by incessant vomiting; that her case was hopeless from the time that Dr. Gessler was called in, and that his treatment of her was absolutely proper. Each said that any operation performed with criminal intent, must have been prior to the doctor's first visit. The result was an acquittal. The guilty midwife was discharged by the judge, after a severe rebuke. The judge stated that if the law permitted he would with great satisfaction have imposed a sentence of murder, were it not for the fact that the effort of the district attorney to fasten the crime upon the physician made it possible for the midwife to go free.

Did not Show Required Qualification.—The second clause of chapter 1353, section 3, of Public Laws of Rhode Island, of May 16, 1895, the supreme court of that State construes as being intended to apply to physicians who, not possessing a diploma from a reputable and legally chartered medical college, indorsed as such by the State Board of Health, as required by the first clause of the section, had been in practice a sufficient length of time prior to Jan. 1, 1895, and with sufficient success, to have acquired an honorable reputation in the community as practitioners. Satisfactory evidence of possessing this qualification, so as to entitle him to a certificate to practice medicine, the court holds was not furnished, in the case of Paquin

v. State Board of Health, decided Feb. 11, 1896, where the testimony showed that the applicant was for several years prior to 1889 engaged in the dry goods and boot and shoe business; that in 1889 he took up by himself the study of medicine, and later in that year began to practice, chiefly, if not wholly, among the French residents of the town; that from the latter part of 1889 he gave his attention exclusively to the practice of medicine, leaving the dry goods and boot and shoe business to be managed by clerks; and that he continued his practice up to Jan. 1, 1892, some of his patients being satisfied with his services, and some not. And, on the ground that there was no evidence that on Jan. 1, 1892, he had come to be regarded by the community in which he practiced as a skillful and successful practitioner, and therefore had acquired the honorable reputation as a physician necessary to qualify him to practice contemplated by the statute, as above stated, the court confirms the decision of the State Board of Health denying a certificate to him.

Dislocation of the Spine and Consequent Hyperpyrexia.—The following case of the above-named complication is given by Dr. C. Lambette in *La Presse Médicale Belge*: A female, aged 40 years, was brought to the hospital at Schaarbeck, who had fallen back in the course of her work from a height of five feet, striking a solid horizontal bar about the region of the kidneys. Her health previously was invariably fine. The fall produced a luxation between the sixth and seventh cervical vertebræ, showing the spinal marrow, as the autopsy disclosed a complete diastasis of the two vertebræ. The lower limbs and muscles of trunk were completely paralyzed, pulse 120, respiration exclusively diaphragmatic. The unusual feature of the case was the sudden and excessive rise of temperature. One-half hour after accident it was 98 degrees. In twelve hours it was 102 degrees and in twenty-four hours it rose to 109.5 degrees when death ensued. Dr. Lambette draws the conclusion from it that there must be some nerve center in the region of the sixth or seventh vertebra which acts with great energy to control or modify the temperature of the organism. Destroyed by some lesion this center ceases to act as moderator of the temperature, which then rises unchecked, as is proved by the hyperpyrexia following this accident so immediately and to such an excessive extent. No possible infection could have occurred in this case and consequently it proves that fever is not necessarily of microbian origin, but may result from some lesion of a calorific nerve center.

Attention to Sanitary Practice in the Rural Districts.—The *Charlotte Medical Journal* editorially calls attention to the duties of the medical profession to their rural constituencies in the matter of disease prevention. That journal says: "While sanitation has made rapid strides in the great cities, it has not in the rural districts and small towns made the same progress. The principal points wherein reform is needed seems to be in the line of water supply, waste disposal and drainage. The complete abandonment of all shallow wells and the substitution of deep tube wells for isolated districts; for towns, a public supply drawn from uncultivated and uninhabited uplands, and the sanitary supervision of all such districts. In the matter of waste disposal, all privies and cesspools should be absolutely prohibited, and when water carriage is not available, the disposal of excreta by means of the ash or dry earth closet is the only proper method. Slop and wash waters are best disposed of by means of surface or subsoil irrigation over neighboring land; kitchen refuse, etc., should be burned in the range, or what is perhaps better, in a simple open-air furnace made of brick. In country houses, where water service is used, surface irrigation of the sewage, over some near-by field, is the plan to be desired. Drainage, both surface and subsoil, has been much neglected, but it is a potent factor in the healthfulness of a locality; it is really wonderful what changes are wrought on a moist land by careful underdraining—it is the old story of the Pontine Marshes. The proper preparation of a building site is still another point; many houses of the poor are put down without any cellar, and the residual dampness in such a house can not fail to be a factor in disease. A cellar, five or six feet deep, with the walls properly constructed and a floor, underdrained if necessary, and then covered with several layers of bricks, pitch and concrete, make the proper and only proper foundation for a dwelling. How can these advances in sanitation be accomplished? By educating the people to the proper understanding of the value of sanitary affairs, and this rests with the family physician.

Practical Testing of the Anti-Erysipelas Serum.—The Paris correspondent of the *Medical Press and Circular* states that Dr. Chantemesse has recently reported on the treatment of 501 cases of erysipelas by serum prepared by the Pasteur Institute, with a mortality of only 2.59 per cent. The effects of the serum are both local and general. Locally, at the end of twenty-four hours, a marked decrease of the redness, swelling and pain, is observed. Desquamation sets in at an early hour consisting of thick epidermic scales. Sometimes the lesion continues to spread but is arrested by repeated injections. Suppuration is very rare and where it existed before the treatment it is considerably diminished by the injections. The general condition of the patient improves rapidly a few hours after the injection; if the dose is sufficient the patient experiences a *bien être* well marked; the nervous disturbance and particularly the delirium are favorably influenced. The fever abates rapidly, to disappear altogether at the end of the second day, while the pulse diminishes in frequency and increases in strength. Where albuminuria has already set in, the injections cause it to disappear within forty-eight hours. The gravity and the duration of the affection are diminished by the serum treatment. The ordinary doses of serum varies between six and ten drams.

Alabama's Embalming Law.—One of the laws passed at the last (1894–5) session of the General Assembly of Alabama created a State Board of Embalming. This consists of five members appointed by the governor. They are required to be practical embalmers, having experience in the business and in the care and disposition of dead human bodies. It is made the duty of the board to prescribe a standard of proficiency as to the qualifications and fitness of those engaged and who may engage in the practice of embalming and the care of and the disposition of dead human bodies. Every person desiring to engage in the practice of embalming dead human bodies, must make written application to the board, accompanying same with a license fee of $5, and then the applicant, having presented himself or herself before the board at a time and place fixed by it, is, upon due examination, to satisfy the board that he or she is of good moral character, is possessed of a knowledge of the venous and arterial systems, the location of heart, lungs, stomach, womb and other organs in the human body; the location of abdominal, pleural and thoracic cavities; the location of the carotid, brachial, radial, ulnar, femoral and tibial arteries; a knowledge of the science of embalming and the care and disposition of the dead, and has a reasonable knowledge of sanitation and the disinfections of bodies of deceased persons and the apartment, clothing and bedding in case of death from infectious or contagious diseases. To such an one the board will issue a license, which is to be registered in the probate judge's office of the county in which it is proposed to practice, and is to be displayed in a conspicuous place in the practitioner's office. The board is to be paid $2 annually for renewal of registration. Nothing in this act is to apply to or in any manner interfere with the duties of any officer of local or State institutions, nor to any person engaged simply in the furnishing of burial receptacles for the dead; and the act

itself is only to apply to cities and towns having a population of 1,500 or over. The penalty for practicing or holding one's self out as practicing the science of embalming without having complied with these provisions is a fine of not less than $50 nor more than $100 for each offense, which goes to the public school fund.

Kitasato's Work in 1895 in Serotherapy.—Dr. Nakagawa writes to the London *Lancet* on the above subject, stating that Kitasato has lately published a detailed report of 353 cases treated at the institute with the serum prepared under his supervision. For those who have no access to the original a few brief extracts may be of some interest. Rate of mortality may be learned from the following: "Kitasato has collected from reliable sources 26,521 cases of diphtheria in Japan previous to serotherapy, with 14,996 deaths (56 per cent.); while of 353 cases treated here from Nov. 1894, to Nov. 25, 1895, there were only 31 deaths (8.78 per cent.). There is reason to believe that the mortality can be lowered if the treatment could be commenced early in the course of the disease. Thus in 110 cases in which injections were made within forty-eight hours after the invasion all ended in recovery. On the other hand, of thirty-three cases treated after the eighth day of the disease eleven were lost. Some of the patients were brought into the institute in a moribund condition, and six children died within five hours after admission, six more within ten hours; altogether twenty-one cases (two thirds of the total mortality) were lost within the first twenty-four hours. As to the effect of the serum on the course of the disease the first to be noted is: 1. The fall of temperature; in many cases the defervescence was almost critical, and, it takes place usually at the end of twenty-four to forty-eight hours. 2. The separation of the false membrane, which takes place as a rule after the return of the temperature toward the normal. Very large casts of the trachea and larger bronchi have been coughed up. 3. Urticaria-like eruptions were observed in very many cases, being in some quite severe and annoying. They, however, disappeared in a few days without any treatment. 4. In four cases marked albuminuria was observed at the time of admission. In these cases albumin disappeared from the urine in the course of the treatment. Pyrexia was accompanied by albumin in the urine, but there was no reason to believe that any renal trouble was caused by the injections. 5. Five cases developed paresis of the soft palate. I wish to note, in conclusion, that microscopic as well as culture examinations were made in every case, and Dr. Kitasato's report only deals with those cases in which Löffler's bacilli were demonstrated to be present."

Localization of the Variolous Eruption.—While smallpox is still prevalent in many parts of the country it may be worth while again to call attention to the procedure which has been more or less frequently resorted to for nearly half a century with a view of localizing the eruption on the trunk of the body and so save pitting of the face as well as reducing the dangers of corneal inflammation. Dr. George O. Butler in the May number of the Cleveland *Journal of Medicine* recounts that his attention was attracted to this method by a confederate surgeon at Frankfort, Ky., during the winter of 1863. His mode of treatment was, so soon as a case was diagnosed variola or varioloid, to apply a cantharidal plaster about ten or twelve inches square upon the anterior aspect of the thorax. As soon as vesication ensued, he would apply a flaxseed poultice, remove the cuticle, reapply the poultice for a day or two, then dress the blistered surface with savin cerate. The discharge from the raw surface was profuse. In addition to this local treatment cathartics, diuretics and diaphoretics were used as required. Dr. Butler observed this procedure in at least fifteen or twenty cases. The papillæ or red pimples, as large and hard as a birdshot, would disappear as soon as the blistered surface discharged freely. There were no vesicles or pustules observed whenever the cantharidal plaster was applied before or during the papular stage. Two of the cases were treated without the local application, and they developed into typical cases of discrete smallpox. In some few cases vesicles were visible, and would dry up and disappear as would a varicella, the vesicle leaving no scar or pit. The duration of the disease was materially shortened, none being confined to bed longer than one week. During the following winter (1864), the disease appeared in Cleveland in an epidemic form. Dr. Butler had then returned and resumed practice and was fortunate enough to treat some twenty cases at their homes under unfavorable circumstances. He adopted the forgoing treatment, with recovery in each case without pits or scars, excepting upon the blistered surface which presented an immense pitted scar or cicatrix. In only one case were more than five or six visits rendered. Dr. Butler adds that he made some notes during Prof. A. C. Ackley's lecture on smallpox in the year 1853, wherein the application of an ointment composed of croton oil and tartar emetic was recommended for a similar purpose; and also that he was informed that previous to the war of the rebellion the physicians in the West India Islands pursued the blistering treatment with like results. In his history of the smallpox epidemic in Illinois, 1881-1883, the late Dr. John H. Rauch called attention to a case of smallpox reported by Dr. Charles Caldwell, in which two days before the eruption made its appearance the patient had a sore throat and applied a towel saturated with kerosene to the neck. Dr. Caldwell says: "When the eruption came out the pustules were all on the neck. If we only knew at the time that the patient was going to have the disease a blister or other counter-irritant to some part of the body might save the face." In a footnote to this case Dr. Rauch says: This expedient was in use in the Vienna General Hospital in 1863 (Schmidt's *Jahrbücher*, Band 133) and about the same time by Dr. Lyndon a confederate surgeon. (*Medical and Surgical Reporter*, vol. xlvii, 1882.)

Practical Notes.

Chewing-gum the Nucleus for an Appendicitis.—A youth of 18 years, of Peekskill, N. Y., was taken suddenly and seriously ill with an attack that was diagnosticated as appendicitis. An operation was performed and the diagnosis confirmed. The appendix was found to be ulcerated and perforated. It was removed and in it was found a globular piece of chewing-gum, upon the surface of which adhered a vast number of particles of partly digested food, making a lump about the size of a walnut. The recovery of the young man is still in doubt.

Stephen Smith's Amputation at the Middlesex Hospital, London.—The *Medical Press and Circular* gives an abstract of a clinical demonstration at the Middlesex Hospital of the above operation for the relief of thrombosis of popliteal and femoral arteries and gangrene of leg. The patient was a male, aged 57 years, but looking much older. Occupying the middle third of the outer surface of the patient's right leg was an ulcer more than six inches long, extending down to the interosseous membrane, to the tibia and the fibula; this was caused by gangrenous inflammation; the slough had nearly all separated, but the exposed outer surface of the tibia was necrosed. The foot was very edematous. Pulsation was felt in the femoral artery down to the apex of Scarpa's triangle, below which no arterial pulsation could be detected. The leg was removed at the knee-joint below the semilunar fibro-cartilages, the stump being covered in by lateral flaps taken from the leg according to the method of Stephen Smith. The femoral artery was found filled with a dark red thrombus; the arterial wall was not notably thickened or otherwise diseased. Mr. Gould said it was necessary in these days for a surgeon to justify very completely every amputation, but he believed that in this case there

was no other course opened to him to pursue. The existence of the thrombosis, together with the feeble state of the patient, rendered it probable that the ulceration would never heal, but even were healing to be obtained, the man would be left with a useless and troublesome leg. The extensor and peronei muscles were destroyed, so that the foot would be in a condition of paralytic equino-varus; and the anterior tibial and musculocutaneous nerves having also been destroyed, the dorsum of the foot would be deprived of all sensation, and would probably become quickly the seat of trophic sores. Having decided to amputate, the question arose as to the best method to adopt. He has chosen Stephen Smith's amputation through the knee-joint because it was attended with less shock and less hemorrhage than any amputation through the lower part of the thigh; if successful it would leave the man a better stump than an amputation further up. In the patient's feeble state Mr. Gould attached great importance to the little shock and trifling hemorrhage (in this case not amounting to half an ounce), and this was the chief reason that had weighed with him in his decision. He was aware, however, that this operation was in this particular patient attended with risk; the flaps of skin and fascia which he had reflected from the leg were very thin, and at the same time were of necessity long, and with thrombosis of the popliteal and femoral arteries there was danger that one or both these flaps would slough. He pointed out that the outer flap, owing to its less free blood supply, was more liable to slough than the inner flap. In speaking of the thrombosis, he drew attention to the probability of its being due to an extension of clot from the anterior tibial artery, the seat of disease, and not to extensive disease of the arterial wall, the disease differing wholly from another he mentioned, in which he recently performed the same operation for gangrene of the leg due to obliterative arteritis, and in which the popliteal artery was found to be filled, not with thrombus, but with organized fibro-cellular tissue.

Detroit.

THE COMMITTEE on medical legislation appointed by the medical societies of this city and State, met May 1. The name adopted was the Michigan League for Medical Legislation. The membership was extended to include any practitioner and the vice-presidents are to be one from each pathy. The second meeting will be held on May 8, for the election of permanent officers.

THE REPORT from the Health Officer for the week ended May 2, gives: Deaths 76, under 5 years 30; births, male 44, female 41. Contagious diseases: Diphtheria, 8 new cases, 2 recovered and none died; scarlet fever, 4 new cases, 11 recovered, none died.

THE DETROIT COLLEGE OF MEDICINE surprised its senior class this year by requiring every member of the class to write upon the final examinations. This was in the face of the fact that the regulations of the college allow that all whose standing for the term reaches a standard of 85 per cent. shall be exempt from final examination and following out this rule, last year's senior class were all allowed to pass except some half dozen men who were obliged to take a final. There were 79 graduates.

THE ANN ARBOR (Mich.) HOSPITAL which is at present crowded will probably remain open during the summer months.

Washington.

HEALTH OF THE DISTRICT.—The following report by the Health Officer for the week ended April 18 is made: The mortality of the District during the past week reached 116. In the previous week it was 112. The death rate was 21.90, as against 22.67 during the same period last year. Both the health and meteorological conditions evinced unusual variations from those of the last report. The mean temperature rose 28 degrees over that previously reported, and stood at a mean of 70 degrees. Accompanying the high temperature was a high barometrical pressure, with southerly mild breezes, and with an almost even relative humidity. The maximum temperature for the week was 93 degrees and the minimum 37 degrees; range 56 degrees.

THE INEBRIATES BILL RECOMMITTED.—The bill to provide for the care and cure of inebriates in the District of Columbia was reported to the Senate adversely April 17 last and postponed indefinitely. On the 24th ult., a motion to reconsider was agreed to, and the bill was recommitted to the Committee on the District of Columbia.

SMALLPOX HOSPITAL.—The Commissioners have sent to Congress a recommendation that the following proviso be added to the item in the pending deficiency bill making appropriation to complete the smallpox hospital: "That the Commissioners of the District of Columbia are authorized to make rules and regulations for the government of the smallpox hospital, and to charge reasonable prices for the use of private rooms therein (when such use is not rendered necessary by the condition of the patient) and for the accommodation of persons not afflicted with smallpox, but allowed to enter said hospital in company with relatives or friends who are so afflicted."

MEDICAL VALUE OF THE X RAYS.—Prof. J. J. Kinyon, of the Marine-Hospital Service and professor of bacteriology of the medical department of Georgetown University, is conducting an interesting series of X-ray experiments before the medical students of Georgetown University at the medical department.

STAFF OFFICERS AT THE EMERGENCY HOSPITAL.—At the annual meeting of the attending staff of the Central Dispensary and Emergency Hospital, held on the 2d inst., Dr. Swan M. Burnett, was reëlected President, and Dr. W. H. Hawkes was elected to fill the office of Secretary. Both have held the office for the past twelve years.

WOMAN'S CLINIC.—The Board of Directors of the Woman's Clinic held their quarterly meeting at the hospital on the 2d inst. The reports of staff and officers showed the work of the institution to be on a steady increase.

WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.—At the 246th meeting of the society held on the 1st inst., Dr. John Van Renselaer read a very interesting and instructive paper, with cases, on venesection and infusion of saline solutions in the treatment of uremic coma. A very full discussion followed.

TO ESTABLISH HARBOR REGULATIONS.—Mr. Babcock has introduced a bill in the House to establish certain harbor regulations in the District of Columbia. Under this bill it will be unlawful for any owner or occupant of any wharf or dock, any master or captain of any vessel, or any other person, to throw any dirt, ballast, oyster shells, vegetables, dead animals or ashes into the Potomac within the District limits, or on its shores below high water mark, unless for the purpose of making a wharf, duly authorized by the Commissioners. A violation of the act shall be punishable by a fine in the police court, not exceeding $100 or imprisonment for six months, or both.

TO REGULATE NEW MEDICAL COLLEGES IN THE DISTRICT.—The Commissioners have returned to the President, with their approval, the bill regulating medical colleges. Under this bill all colleges will be required to first obtain a permit before opening their doors. The bill is aimed at quack institutions, which bestow diplomas without any other requisite save the payment of a small fee.

Cincinnati.

THE CELEBRATED PEARL BRYAN CASE is attracting much attention in the medical profession, owing to the amount of expert testimony being introduced. The questions as to whether the head was cut off before or after death, whether the deed was committed in Ohio or Kentucky, where the body was found, or what rôle the cocain found in the stomach might play in the murder. The claim being made by the defense that they had administered cocain to the girl in Cincinnati for the

purpose of producing or assisting in an abortion, and that while under this anesthetic she died, and the defense is therefore only guilty of manslaughter in the State of Ohio, the limit of punishment of which is seven years, while in Kentucky the same crime is a capital offense. The weight of expert testimony tends to prove that on account of the amount of blood found with the body, and the leaves surrounding the same being spattered with blood, the decapitation was done at that spot. It was also claimed that cocain has not been successfully used to produce an abortion, or to hasten labor, by the profession. Both defendants are dental students.

A CASE IN THE CRIMINAL COURT last week brought out a delicate medico-legal question. A man being charged with shooting another offered the defense that the hospital authorities were responsible for his death, by reason of their negligence in the treatment of the case. The man was shot in the left side of the chest, the ball grazing the sternum, deflecting to the left, penetrated the pleura and lung and shattered a posterior portion of the rib. He died five days after, and the autopsy revealed death from progressive hemorrhage with a consolidation of the lung. The claim is made that had this case been properly operated upon at the time of the accident he would in all probability have recovered.

A CASE OF VARIOLOID turned up in the city last week and was taken to the Branch Hospital.

A YOUNG CHILD was received at the City Hospital last week suffering from a foreign body in the larynx. Tracheotomy was performed shortly before the child died. The autopsy revealed a large bean at the bifurcation of the bronchi.

THE ACADEMY OF MEDICINE adopted the report of the committee on "Directory for Nurses," and Sister Anna Kypke of the Losanti Sisters has been placed in charge of the registration, under the supervision of a committee consisting of Dr. R. W. Stewart, Dr. D. I. Wolfstein and Dr. G. M. Allen. The registration will be at the "Losanti," and when a nurse is called her name will then be placed at the bottom of the list, thus insuring impartiality in the selection of the nurses for calls.

THE INVESTIGATION of the Dairy and Food Commission by the Senate Committee has been completed and the committee has reported that it has failed to find where Dr. McNeal has neglected to endeavor to enforce the pure food laws, but that the preponderance of evidence goes to show that Amos Dye should be dismissed as counsel for the Commission on account of his connection with Mr. White, of "Paskola" fame, in the matter of a $5,000 bribe alleged to have been made by Mr. White.

DR. D. W. YOUNG demonstrated before the Academy of Medicine the advisability of making traction in the line of the body in a case of dislocation of the head of the humerus with fracture of the surgical neck.

THE LEGISLATURE has passed the bill permitting the Medical College of Ohio to transfer its property and chattels to the Cincinnati University and become its medical department, thereby losing its identity as a medical college, and the building formerly occupied by the University will be used for the medical department. An important supplementary bill passed during the last day of the Legislature was one enabling the University to charge tuition in all departments except the academic, which must remain free to *bona fide* citizens of Cincinnati under the terms of its endowment.

THE MORTALITY REPORT for the week ended Friday, February 17 shows: Membranous croup 1, diarrheal diseases 3, diphtheria 2, measles 5, septicemia 3, typhoid fever 5, other zymotic diseases 4; cancer 4, phthisis pulmonalis 9, other constitutional diseases 6; apoplexy 4, bronchitis 2, convulsions 5, gastritis 3, meningitis 8, nephritis 3, peritonitis 4, pneumonia 21, other local diseases 26; deaths from developmental diseases 7, violence 9; under 1 year 29; from 1 to 5 years 16; from all causes 137; annual rate per 1,000 20.35; deaths during preceding week 142; corresponding week 1895, 115; 1894, 120; 1893, 113.

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from April 25 to May 1, 1896.

Capt. Aaron H. Appel, Asst. Surgeon, is relieved from duty as attending surgeon at Chicago, Ill.

Capt. Julian M. Cabell, Asst. Surgeon, will report in person to the president of the Army retiring board at Ft. Columbus, N. Y., at such time as he may designate, for examination by the board.

First Lieut. Benjamin Brooke, Asst. Surgeon, is relieved from further duty at Ft. Canby, Washington, and upon completion of his examination for promotion will proceed to Ft. Thomas, Ky., and report for duty at that station.

Capt. Guy L. Edie, Asst. Surgeon, will, upon the expiration of his present leave of absence, report for duty at the Presidio of San Francisco, Cal.

First Lieut. George J. Newgarden, Asst. Surgeon, is granted leave of absence for twenty-one days, to take effect upon his relief from duty at Fort Wayne, Mich.

First Lieut. Powell C. Fauntleroy, Asst. Surgeon, is relieved from duty at Ft. Riley, Kan., and ordered to Ft. Grant, Ariz., for duty at that post.

First Lieut. James S. Wilson, Asst. Surgeon, is relieved from temporary duty at Madison Bks., M. Y., and ordered to Ft. Clark, Texas, for duty at that post, relieving First Lieut. Isaac P. Ware, Asst. Surgeon. First Lieutenant Ware, on being thus relieved, is ordered to Madison Bks., N. Y., for duty.

The order detailing medical officers of the Army to attend the annual meeting of the American Medical Association at Atlanta, Ga., May 14 to May 16, 1896, is amended to direct them to attend said meeting from May 4 to May 6, 1896.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending May 2, 1896.

P. A. Surgeon H. N. T. Harris, detached from the "San Francisco," proceed home and granted three months' leave, with permission to leave the United States.

Asst. Surgeon F. M. Shipp, ordered to examination for promotion May 4 at New York city.

Medical Inspector G. F. Winslow, ordered to New London Station May 9.

Surgeon Clement Biddle, detached from the New London Station May 9 and ordered to the "Monongahela" May 14.

PROMOTION.

Asst. Surgeon J. M. Moore, promoted to Passed Assistant Surgeon, April 29, 1896.

Change of Address.

Brainard, B. F., from Kansas City to Martin City, Mo.
Brown, J. S., from Bear Polar to Salisbury, N. C.
Bannister, H. M., residence from Austin to 222 Harvey Ave., Oak Park, Ill.
Connell, D. R., from Chicago to Davis, Ill.
Dobson, S. J., from Chicago, Ill., to Jefferson, Kan.
Eaton, F. B., from Portland, Ore., to care Gordan W. A., San Jose, Cal.
Franklin, W. A., from Omaha to Leroy, Neb.
Gradie, Henry, from 65 Randolph St. to Room 608, 100 State St., Chicago, Ill.
Hayd, H. E., from 78 Niagara St. to 493 Delaware St., Buffalo, N. Y.
Hakanson, A., from 7746 Coles Ave. to 153 92d St., Chicago, Ill.
Harris, M. L., from Chicago Opera House Bldg. to 612 Reliance Bldg., Chicago, Ill.
Jordan, J. D., from Madisonville, Texas, to 819 W. Harrison St., Chicago, Ill.
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Mason, J. F., from Sharpsburg to Taylorville, Ill.
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Maynard, F. B., from Sandy Hill to Brockport, N. Y.
Murrell, T. E., from St. Louis, Mo., to Albuquerque, N. M.
Mullen, T. R., from Omaha, Neb., to Marcus, Iowa.
Northup, F. A., from Chicago, Ill., to 381 Scott St., Milwaukee, Wis.
Piper, R. J., from 100 State St. to 480 Grand Boul., Chicago, Ill.
Winn, G. L., from 435 W. State St. to 317 Wm. Brown Bldg., Rockford, Ill.

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